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SPECIAL ARTICLE.

THE CRAIG COLONY PRIZE ESSAY—SEROTHERAPY IN EPILEPSY.[1]

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I HAVE availed myself these last years of the rich material offered by our institution for the study of the pathogenesis of idiopathic epilepsy, that I might, with new data, strengthen the autotoxic theory, a theory which is undergoing in neuropathology a larger and larger development. Evans, Régis, Chevalier, Lavaure, Jacobson, Féré, Voisin, D'Abundo, Herter and others agree in admitting that a toxic irritating cause, probably of a biochemical nature and elaborated by the organism, must be of capital import in the determination of the epileptic fit. Unhappily none of the numerous searches for a basis for this theory has afforded a plausible demonstration of the assumed toxic substances, and the different ways that different authors have followed have led to such divergent and contradictory results that we must regard the important question as still unsolved.

I have often endeavored to study this subject in accordance with the views of these different authors, but the results I have obtained, especially in studying the toxicity of urine and blood by means of injection in animals, have convinced me of the great difficulty of this kind of research in which the experimental methods at our disposal are so insufficient and inexact.

Recently I have tried the intra-albuminous injections of epileptic serum (according to Féré's method) into hen's eggs and obtained such convincing results that I flatter myself I have a new and valuable confirmation of the autotoxic theory of epilepsy.[2]

I think we cannot explain by any other interpretation the constant and often remarkable increase of the teratogenic power of the blood serum of epileptics in general, compared with that of healthy individuals, as shown by my researches. Indeed, even if we were to neglect the close relations between the teratogenic and the toxic power of poisons in general, as Féré indicates, we should not know by what other organic phenomenon to explain the remarkable oscillation of the teratogenic power of epileptic blood, other than by the modification of cellular changes, a modification that is admitted for the toxic power.

It is even probable that the circulating toxic principles which have the property of deeply interfering with the normal development of the embryo, either by acting directly on its elements or indirectly through perturbations induced into its annexes,[1] are closely connected with those poisons which, acting as simple irritants upon the formed element, produce the epileptic phenomena.

I have found a series of facts indicating an intimate relation between the degree of the teratogenic power of the blood in epileptics and the importance and nature of the clinical phenomena. This strongly confirms the previous hypothesis. Invariably the teratogenic property of the blood of such patients has always appeared to be in direct relation to the severity of the disease and the date of its beginning. So I feel authorized in entertaining the view that there is a relation between the teratogenic principles and the circulatory toxic ones to which so high an importance is now given in the etiology of epilepsy.

I have demonstrated and strengthened these facts through hundreds of experiments (see preceding note) which have been carried on with great care as to technic, and with the observance of certain rules of my own which I have thought necessary to introduce in the method of intra-albuminous injections.

However, even if the autotoxic theory of epilepsy were not to gain through my researches any step forward, I have referred to them in order to put this question upon a practical ground, although its place in science is not yet so firmly fixed as to be beyond the pale of active discussion.

Now, the belief grows more and more fixed in my mind from the results just referred to that the epileptic phenomena are the consequence, at least for the greater part, of toxic products circulating in the organism. This, together with the encouragement offered by the modern serotherapy, which is grounded upon specific and causal remedies, has led me to ask myself whether in idiopathic epilepsy it would not be possible to discover a similar method of treatment.

Our imperfect notions concerning the pathogenesis of this disease allowed me to proceed only by experiments and most cautiously; therefore I began without preconceived opinions, only being sure that whatever the results might be, even if quite negative, they would still contribute to the pathogenesis of a disease which is still so obscure.

As the blood-serum in epileptics, in my opinion, contains the soluble epileptogenous principles in a quantity varying with the severity of the disease, I tried first to study the effects of small doses of epileptic serum injected into other epileptics. My object,

[1] The Craig Colony Prize for Original Research in Epilepsy is a prize of $200, which has been offered for the past three years by Dr. Frederick Peterson of New York for the best original, unpublished contribution to the pathology and treatment of epilepsy. In 1899 and 1900 the Prize Committee, consisting of three members of the New York Neurological Society, decided that the prize should not be awarded. The committee for the year 1901, consisting of Drs. G. W. Jacoby, Pearce Bailey, and Ira Van Gieson, recommended that the prize be awarded to Dr. Carlo Ceni of Pavia, Italy, for his essay entitled "Serotherapy in Epilepsy." The report of the committee was approved at the meeting of the Board of Managers of Craig Colony, held at Sonyea, N. Y., on October 8, 1901. By the terms of the competition the successful essay became the property of the Colony. In order that it might receive the widest recognition possible, the committee recommended its publication in a general medical journal. In addition to its present appearance in the MEDICAL NEWS it will also appear in the Medical Report of the Colony, soon to be published.

For the year 1901-2 Dr. Peterson renews the prize of $200 for the best original unpublished contribution to the pathology and treatment of epilepsy. Originality is the main condition. All manuscript should be submitted in English. The prize is open to universal competition. Each essay should be anonymous and accompanied by a sealed envelope containing the name and address of the author and bearing upon the outside a motto or device, which is to be inscribed also upon the essay. All papers received will be submitted to a committee, consisting of three members of the New York Neurological Society, and upon the committee's recommendation the award will be made at the annual meeting of the Board of Managers of the Craig Colony, October 14, 1902.

Manuscripts should be sent to Dr. Frederick Peterson, 4 West 29th Street, New York City, on or before September 30, 1902. The successful essay becomes the property of the Craig Colony and will be published in its Medical Report.

[2] Riv. sper. di Fren., Vol. 25, 1899.

[1] Centralblatt f. Nervenheilkunde, Nov., 1899.

founded on the principles of modern serotherapy, was to find out if the specific poison would in time introduce into the organism in which it circulates any property that might be of therapeutic value to other less severe and earlier cases. Such experiments were made upon several patients, but I never obtained any result worth mentioning. I next wished to determine if by progressive doses of the same serum I could render an epileptic more resistant to the dangerous action of the poison that circulates in him. In other words, it was my object to determine the possibility of establishing an immunity, whatever its degree might be, against a poison formed by the organism itself; an immunity such as may be obtained through poisons in general and particularly through poisons of a bacterial origin.

Serotherapy was first applied in mental diseases by Toulouse for alcoholic psychosis (Biological Society of Paris, meeting of March 28, 1896). He administered to dogs large doses of alcohol for a week, in order to excite in their organism the formation of products which would be curative in alcoholic intoxication. The serum of these dogs was injected into a patient suffering with acute alcoholic delirium. The patient was remarked to be sensibly better on the following day. But Toulouse did not express his opinion about an anti-alcoholic serum.

New experiments of serotherapy in mental cases, supposed to be of toxic origin, were afterward announced by Messrs. Mairet and Vires at the Third French Congress of Internal Medicine, which was held at Nancy, August, 1896. These authors injected artificial serum into insane, melancholic and epileptic patients without any beneficial results whatever.

Rabbit-serum and dog-serum were also injected into hysterical, epileptic, maniacal and melancholic subjects. It did not prove beneficial to the hysterical nor to the epileptic. In the others there was improvement in general nutrition. In melancholia there was also some psychic benefit, especially when dog-serum was used. Later Messrs. Mairet and Vires injected two women suffering from severe mania with the serum of a recovered maniac man. One of the cases presented no benefit; in the other a physical and psychic amelioration resulted.

In one of Dr. Bianchi's preliminary notes on serotherapy in phrenosis, which was published almost simultaneously with Toulouse's, Mairet's, and Vire's communication, in the *Riforma Medica* (1896, Vol. III., p. 502), it was stated that in the asylum at Imola, Dr. Brugia was making studies upon serotherapy on the assumption that many perturbations of the mind arise from auto-intoxication. The note was of the following tenor: "Some of the results that have thus far been obtained are brilliant. Recovery has occurred in certain psychopathic cases in which a prognosis of incurability seemed inevitable."

Dr. Brugia did not, however, publish his results, as they proved contradictory. Messrs. Broca, Sapelier and Thiebault, at the meeting of the Academy of Medicine of Paris, December 26, 1899, stated new results favorable to the serotherapy of alcoholism.[1] He experimented with the serum of horses subjected to alcoholic intoxication. This serum has the property of producing a deep disgust for alcoholic beverages.

Mr. D'Abundo, at the Tenth Congress of the Phreniatric Society, held in Naples October, 1899, reported some experiments of serotherapy in progressive paralysis. The following is quoted from him: "The blood serum of excited paralytics, in one of the least advanced stages of the disease, proved sedative and restoring." There was a distinct history of syphilis in the patient. I have not yet drawn any conclusion from this, but if the result was not a mere chance I think it militates in defense of an infective-toxic origin of progressive paralysis. We may intuitively perceive that the specific toxicity, which the evolution of the disease in the individual has produced, displays some curative power in initial cases.[2]

Let us now speak of my serotherapeutic experiments in epilepsy, founded upon repeated injections of epileptic serum.

I made my first experiments upon animals and shall confine myself to stating the results. Many intraperitoneal injections of epileptic blood-serum, in increasing doses, were made before I succeeded in injecting with impunity, into cavities, doses of twice the strength of the original fatal dose. The animals that first presented a severe hypothermy and weakness in time not only suffered no ill effect from the treatment, but they increased steadily in weight. The way seemed to be opened for a therapeutic experiment in epilepsy. It seemed possible to benefit epileptics by lessening their cellular sensibility through a repeated and progressive contact with the presumed toxic epileptogenic substances. Two procedures were possible; one, the injecting of blood-serum of one epileptic into a second epileptic less ill than the first; the other, the re-injecting into an epileptic of the blood-serum drawn from hm after bleedng.

These two methods, apparently so different, should give the same results. In both cases, admitting that the blood contains the toxic and soluble principles believed to produce the epileptic phenomena, there is artificially introduced into the organism a much greater quantity of these poisons than is usually found there.

My hypothesis may be made clearer by referring briefly to my explanation of the mechanism by which epileptic crises take place. As stated in a previous note on the pathogenesis of epilepsy, the crises are only brought about by a discharge of dynamic energy gathered in epileptogenic centers in consequence of an irritation which is lasting, constant and uniform for an indeterminate period of time. I drew this interpretation only from the evidence furnished by my researches, to the effect that the amount of poison circulating in epileptic blood does not change in the same individual in different stages of the disease. My hypothesis, which forms the basis of the present experimental researches, differs from the views held by most adherents of the autotoxic theory. According to these latter the intermittency of epileptic seizures depends upon an excessive periodical irritation of the nervous centers which is caused by a periodical production or by an accumulation of toxic principles, anomalous to the organism. With such an interpretation it would have been difficult to foresee the possibility of immunizing against the poisons circulating in the organism by periodical injections of the same poisons, even if made in progressive doses.

A brief exposition of some of the new therapeutic experiments that I have been making for more than two years past in our Institute, always with very encouraging results, is the object of the present communication. I shall first, however, briefly describe the technics used.

First, I must emphasize the necessity of scrupulously following the rules of asepsis and antisepsis in every step of the procedure, namely, in blood-letting, in the separation and preservation of the serum, and in the injections. The condition of the patient who is to furnish the blood must be ascertained, in order that the danger of transmitting disease be avoided. As to blood-letting, I use tubular needles of large bore fixed

[1] Scabia-Terapia delle Malattie Mentali, p. 227.

[2] Annali di Neurologia, Anno XVII., Fasc. 4.

on a glass pipette about 10 centimeters long. With this simple instrument and a recipient with a large opening (I use Erlenmeyer's bottles), we can draw aseptically as much blood as we like, without exposing it to the contact of air. The tubular needle is inserted into a venous trunk that has been compressed above. The free end of the pipette is introduced into the aforementioned receptacle. After having again disinfected the slight wound and washed it with alcohol and ether, it is closed with a drop of liquid taffetas. In this way a patient can be bled several times without suffering the least inconvenience. The quantity of blood withdrawn varies with the individual. The most I have taken at one time from strong persons is 250 to 300 cubic centimeters. Then I separate the serum and divide it in small bottles holding 10 cubic centimeters each, only adding some camphor. However, that the preservation may be surer, I have long used fractional sterilization. If this be done at low temperatures it has no influence on the beneficial properties of the serum.

Both in injecting serum from one epileptic into another and in reinjecting into the same patient I always follow the method of progressive doses, beginning with 3 to 5 cubic centimeters and increasing gradually up to 10 or 20 cubic centimeters in thirty or forty days. As will be seen from the histories of the different cases, this method is necessary from the fact that some patients react violently to the first injections even when made in small doses, and present the symptoms of an acute intoxication, which may even be dangerous. This is the crisis of adaptation and is quite transitory, disappearing after a few injections. Commonly several injections, continued for some weeks, are necessary before durable results are obtained.

My method of treatment is briefly as follows: During the first month I inject into the glutei, at intervals of a few days and in progressive doses, a total quantity of 40 or 50 cubic centimeters. During the following months, when I think the patient has overcome the first adjusting period, I carry the total dose up to 80, 90 or 100 cubic centimeters, especially when the patient begins to improve. In these cases I have continued the injections until I thought the maximum advantages had been obtained. This I inferred from the presence of a firm equilibrium in the general condition as shown by their no longer reacting, but being indifferent to the treatment.

I think, however, that an exact general rule for these injections cannot yet be given. It always depends upon the peculiar conditions of the individual into whom the injections are to be made. We shall see that these conditions may be such as to contra-indicate treatment altogether.

Ten epileptics have thus far been subjected to the injections. They have been under my observation during a period varying from one to two years. The final results, therefore, may be considered as of a scientific and practical value, upon which we may justly rely in our inferences and judgment. All the cases exhibited the severest form of idiopathic epilepsy, both as to the number and intensity of the motor crises, and as to the presence of psychic and sensorial phenomena.

Case I.—C. A., a marriageable, strongly-constituted young woman, twenty-two years of age, by trade a dressmaker. She has no hereditary precedents. About eight years ago she began to suffer from intense headaches and insomnia, and soon afterward from swoons (two or three a week) with unconsciousness. About this time serious gastric perturbations began also to be evident and the patient suffers continually from heaviness in the epigastrium, and is not seldom tormented with real gastralgias that last many hours and even days. Her tongue is dry and always covered with a whitish coating. She vomits and raises wind, particularly a few hours after her meals. The swoons have ceased for nearly four years, giving way to tonic and clonic convulsive spasms which grew more and more severe, particularly at the time of her menstrual periods. It is usually an abrupt, cryless spasm characterized particularly by the violence of the general muscular shocks that succeed the tonic period. It lasts from ten to fifteen minutes. Then the patient becomes unconscious for two hours or more. She soon grew disinclined, tiresome and very irascible. These last two years in which the spasms followed each other with extraordinary frequency (five to fifteen times in twenty-four hours), she has become disorderly, spiteful and often violent and aggressive.

Since the patient grew worse her menses have ceased; the gastric perturbations seem to get worse. Besides, one year ago a dry erythema on a deep-red ground appeared on the skin of the breast and abdomen and particularly of the internal parts of the thighs and of the anterior parts of the legs as far as the instep. This produces a constant and intense smarting especially during the night, so that the patient often cannot sleep.

For several years we gave her strong doses of bromide (8 to 10 grams a day) and 4 grams of chloral every night for the insomnia. We tried also to conquer the skin erythema by various internal and external remedies, but always in vain.

At present the patient always sits aside, distant from her companions, silent and down-cast. Her eye is grim and without expression; her face wrinkled, frowning and cyanotic. Her dilated pupils react very poorly to light. Her cutaneous and tendinous reflexes are rather weak, and standing upright with joined feet and closed eyes makes her giddy. A remarkable torpor is to be seen in her motor and psychomotor manifestations. On the first of August the patient weighed 63 kilograms. Her pulse was weak and slow. We experimented on this subject with the serum taken from the blood of an epileptic who was in a no less severe condition, and had been confined in our institution for many years. On the first days of August, 1899, we began to inject small doses of the said serum, but at the third injection of 5 cubic centimeters made at an interval of two days from the last, we suspended treatment as the patient became suddenly worse. The epileptic convulsions became more intense and the patient fell into a state of drowsiness and semi-unconsciousness. She looked more imbecile and cyanotic than ever; the sensibility had grown more obtuse; the reflexes were weaker and the pupils more rigid. She constantly dosed, and when awake she could hardly stand erect. She paid no attention to questions and presented a remarkable torpor in all psychic manifestations.

She remained in this condition for about five days from the last injection. Meanwhile she became sensibly worse. Toward the middle of the said month her weight had gone down to 61.800 kilograms. We let her alone until the beginning of September, when she had returned to about her original condition. Then we resumed the injections with the serum drawn from the same subject as before, and not only are they now borne, even in larger doses, without inconvenience, but they prove also very beneficial to the patient herself. By the end of September we had injected, with several intervals, a total quantity of 50 cubic centimeters of serum. The number of the convulsive spasms in this month decreased to less than half that of the preceding months. Besides, the fits are less severe, much shorter than previously, and quite deprived of muscular shocks.

Sometimes they are limited to a mere unconsciousness lasting a few seconds and being attended by a rapid tonic contraction of a limited group of the muscles of the body.

The muscles of the neck, now on the right side, now on the left, present particularly these contractions. The patient's general condition is also better; her appearance is livelier and more expressive; she appears no longer frowning and cyanotic, and her behavior is more orderly. She grows more docile and less irascible and begins to speak with her companions.

The sensibility and general reflexes may be considered normal, and the pupils react well to light. Her menses, however, have not appeared. Although the gastric disturbances and the skin erythema still persist, they are remarkably abated. The gastralgias have almost disappeared and the patient feels now, only transitorily, a sense of heaviness in the epigastrium, which formerly was almost continual. The tongue is no longer so foul and the eructations are rather fewer. The erythema has grown more and more limited, its characteristic aspect disappears little by little from the margin to the center, giving way to mere irregular spots of a reddish color. The intense smarting characterizing this cutaneous disease diminishes very much and the patient complains only of a local itching, especially at the points where the erythema is in process of recovery.

During the last fortnight of September the patient began to sleep during the night, so that toward the end of the month the chloral was discontinued. Her pulse became normal. Her weight is now 64.300 kilograms.

In October she received a total of 60 cubic centimeters of serum and by degrees she made remarkable improvement. During this month the spasms were reduced to six, three of which were only rapid giddinesses without complete unconsciousness.

She is now a healthy-looking, mild, orderly girl and she seeks elegance in her dress. She embroiders during the day, likes to converse with her companions and sleeps well at night. She complains of but slight gastric disturbances, which are limited to some eructations, occurring on the days of the epileptic crises. All sensation of heaviness in the epigastrium has disappeared and the tongue is always clean and rosy. The cutaneous erythema may be said to have disappeared and in its place only irregular rosy spots remain. The menses appeared this month for the first time in a year and they present a regular course. The patient weighs 65.200 kilograms.

November: In three doses a total of 70 cubic centimeters of serum are injected and the dose of bromide is reduced to 4 grams a day. During the entire month only four epileptic seizures occurred, and even these almost always during the twenty-four hours preceding the appearance of the menses. The gastric disturbances have disappeared and no trace of the erythema remains. The skin has grown everywhere soft, normal, clear and fresh. Weight 66.500 kilograms.

December: During this month only one injection of 20 cubic centimeters of serum was made and the patient continued well without any incident until the 15th. In the evening of that day two new convulsive fits and a giddiness took place. These were the result of the total suspension of the bromide treatment ordered on the preceding day. The patient soon became as well as at first, but the bromide treatment was continued on the following day in doses of 3 grams a day. Her menses are regular, even after a few epileptic crises. During this month the total number of convulsions and attacks of giddiness was seven. She weighs 66.800 kilograms.

January, 1900: Two injections of 20 cubic centimeters each were made. The condition of the patient remains unchanged. During this month only four fits occurred, and these before the menses appeared. Her weight has increased to 67.500 kilograms.

February: The injections are suspended and the patient continues well with a very small number of fits. Her weight is 66.500 kilograms.

March: The suspensions of the serum injections is continued, but the condition of the patient and the number of the fits are almost the same as during the preceding months. Her weight is 66.200 kilograms.

In the beginning of April, insistently urged by her family, she was dismissed from the institution.

DIARY OF THE SEIZURES.

	Convulsions.	Vertigoes.	Weight in Kilograms.
June, 1899.....	111	—	63.200
July, 1899.....	97	—	63.000
August, 1899.....	109	—	61.800
September, 1899...	24	7	64.300
October, 1899.....	3	3	65.200
November, 1899...	4	—	66.500
December, 1899....	3	4	66.800
January, 1900.....	3	1	67.500
February, 1900....	4	2	66.500
March, 1900.....	3	4	66.200

According to information received from the physician of the patient's family, in May, 1900, the fits increased again, but only transitorily, for they diminished again during the following month. Toward the end of 1900, that is, about one year after the treatment, the motor crises increased again in number and severity. The average monthly rate of these crises, however, never reached a third of the number the patient presented before she underwent the serotherapy. Her physical and mental condition always remained good and allowed her to take care of her house, whilst formerly they not only hindered her from it, but had often caused her to be confined in our institution.

Case II.—R. Paul, twenty-two years of age, is a young man of strong constitution, sober, rather defective in intelligence and of a shrinking, timid nature. Serious hereditary antecedents are found in his paternal line. He began four years ago to be subject to giddiness, of an epileptic character, with unconsciousness. These attacks of vertigo, that commonly last a few minutes, were rare at first (one or two weekly); but they grew more and more frequent, so that they appeared during the past two years from three to five times a day.

Two years ago the first complete epileptic fit appeared, and subsequently the fits have reappeared at intervals of from twenty to thirty days. Yet for the past year, during these long inter-paroxysmal periods, the attacks of giddiness have been more frequent than formerly, occurring from five to ten times a day. These attacks, moreover, are attended with hallucinations. The psychic phenomena are quite transitory and last only a few minutes. At their subsidence the patient quickly becomes normal. During the past few months, in which there has also been an increase of the convulsive fits, the patient has had periods of unusual restlessness, with a slight torpor of the intellectual powers. These periods last from a few hours to whole days. The patient now suffers from want of sleep and complains constantly of a sense of heaviness in the head. His nutrition has deteriorated and he has grown depressed, irascible and sullen. No disturbance of sensibility or motility. General reflexes normal. For the past year the patient has been taking

bromide in large doses. Toward the end of August 1899, he weighed 68.300 kilograms.

In the first days of September, 1899, the patient undergoes a regular treatment of injections with the blood-serum drawn from another patient suffering from a more severe type of epilepsy. In this month a total of 40 cubic centimeters of serum are injected in small doses. During the first fortnight of the treatment the patient appeared to get rather worse and lost about 2 kilograms in weight. The convulsive fits are more numerous, so that they appear almost every day and the sense of heaviness in the head has now become a strong and almost constant cephalalgia. The patient is more restless and depressed than ever, and often refuses to eat. In the second half of the month this state of things disappears by degrees. The patient gets back into the condition of the preceding months and even shows signs of improvement. His weight has increased to 67.600 kilograms.

October: In this month a total of 60 cubic centimeters of serum is injected and at the beginning of the month the bromide treatment is entirely suspended. The patient soon passes into a state of unusual well-being. He sleeps quietly all night. The cephalalgia and the sense of heaviness in the head, as well as the hallucinations, disappeared. In the whole month there are but one convulsive fit and three attacks of giddiness. The patient weighs 71.300 kilograms.

November: The patient receives 55 cubic centimeters of serum and is perfectly well until the 27th. On that day two fits occur with short interval. On the following day he suffers from an attack of giddiness and then resumes his normal condition. The weight is 72 kilograms.

December: In this month 30 cubic centimeters are injected and the condition of the patient remains almost as it was in the preceding month. The period of complete pause without psychic or motor epileptic phenomena lasts throughout the month, to the great wonder and joy of the patient. He looks more florid than usual; his physiognomy is lively and he is good-humored, gay and of a mild, good temper. His weight has reached 73.200 kilograms.

January, 1900: The serum injections are suspended this month and the bromide treatment continues also to be suspended. The condition of the patient remains almost unvaried; but the fits reappeared after an interval of 50 days. He had a series of four attacks of giddiness and a convulsive fit in a few hours, which caused him to be dejected and sad for two days. His weight goes down to 71.600 kilograms.

February: Both the serum injections and the bromide treatment are still interrupted. The patient continues well without any disturbance until the end of the month, namely, for 40 consecutive days. He then has a series of three convulsions. This new crisis is followed by a short period of depression. His weight goes down to 69.600 kilograms.

March: Injections are resumed and in this month 45 cubic centimeters of serum are injected. The patient rapidly improves and continues well until the end of the month. Then a new series of three convulsive fits appear from which he makes a rapid recovery. The weight increases to 73.400 kilograms.

April: In the first half of the month two serum injections of 15 cubic centimeters each are made. His general condition remains unaltered, and toward the end of the month he is dismissed at the imperative request of his family. At the time of his dismissal the patient weighed 74.500 kilograms; that is, his weight had increased 6.200 kilograms since the day the injections were begun.

DIARY OF THE SEIZUURES.

	Convulsions.	Vertigoes.	Weight in Kilograms.
July, 1899.....	12	47	67.900
August, 1899.....	10	52	68.300
September, 1899...	14	36	67.600
October, 1899.....	1	3	71.300
November, 1899...	2	1	72.000
December, 1899....	—	—	73.200
January, 1900.....	1	3	71.600
February, 1900....	3	—	69.600
March, 1900.....	3	—	73.400
April, 1900.....	2	1	74.500

According to the reports received from the family, the patient's condition, in the following months of April, May, June and July, remained unchanged from what it was when he was discharged. In the month of August, that is, about one year after the treatment, the epileptic crises began to increase, especially in the form of vertigoes. At the same time the weight decreased, being since that time about 70 kilograms. The physical phenomena, however, that formerly had necessitated the segregation of this epileptic from society, have not yet reappeared, although the bromide which he took in large doses before the treatment has not been resumed.

Case III.—C. Alfred, a countryman, thirty-two years old, unmarried. His mother and father suffered from pellagra with severe nervous phenomena. The patient has always been strong, taciturn and of limited intelligence. From boyhood he suffered from epilepsy, and when about twenty he began to be taken with caphalalgia and insomnia and became stubborn. Then he grew very disorderly and restless, and the epileptic fits having rapidly increased in number, he soon entered into a state of great psychical confusion with periods of psychomotor unrest, interrupted by hallucinatory disturbances.

During the seven years he remained in our institution, although high doses of bromide were daily administered, he grew progressively worse; the epileptic fits became more frequent and of late years they have occurred with an average of thirty to forty a month. Severe psychic disturbances with periods of great agitation, lasting a few hours or even days, became frequent. The state of mental confusion is constant, and pronounced loss of memory is marked. The convulsive fit is severe and is preceded by a cry.

The general sensibility is obtuse; the cutaneous and tendon reflexes are weak. The pupils are equal, commonly dilated and react feebly to light. Standing upright with joined feet and closed eyes causes giddiness. The patient in his general movements presents a remarkable torpor. The weight at the end of October, 1899, is 75.800 kilograms.

With this patient we try the action of the blood-serum he himself has furnished, after having been bled. In the first days of the month of November the injections are begun. Made in high doses of 10 cubic centimeters, they are soon increased to 20 cubic centimeters. The patient presents no disturbance at all. Thus in his first month of treatment a total quantity of 80 cubic centimeters of serum is injected.

Toward the end of the month he appears to be getting better. The epileptic phenomena, both motor and psychic, have limited themselves in number and intensity. The convulsive fit that commonly lasted about a quarter of an hour now lasts but from two to four minutes. The psychic equivalents which were almost daily in the preceding months appear but three times this month. They take the form of a brief agitation.

Still the great psychic and motor torpor persists, and the patient always presents Romberg's phenomenon. No considerable modification appears in sensibility or in the general reflexes. The general aspect of the patient seems to be rather better and his weight increases to 77.300 kilograms.

December, 1899: In this month 90 cubic centimeters of his serum are injected. Improvement is rapid. The epileptic motor crises are reduced to three during the month. They appear after twenty-eight days of complete pause, and twice the fit is not followed by the muscular shocks. The hallucinations and the psychic equivalents have disappeared, and the patient presents now a remarkable rousing from the state of general torpor and mental confusion, in which he has been for several years. His physiognomy has a livelier expression; he pays attention to questions and to what happens around him; he can give correct answers and recollects some occurrences of the last few weeks. He is quiet and helps willingly with the simple work of the ward. His countenance is florid with a bright skin and a healthy color, and he is more active in his movements. Romberg's phenomenon has disappeared; the sensibility is less obtuse; the reflexes have now become rather exaggerated and the pupils react promptly to light. He now weighs 81.600 kilograms, an increase of more than 6 kilograms in two months.

January, 1900: The total quantity of serum injected is 110 cubic centimeters. The general condition continues better, although in this month there is a slight increase of the epileptic crises. There is only one complete epileptic fit, but there are eight very slight fits. These latter are limited to a mere swooning or to a rapid increase of muscular tonicity. No psychic or psychosensorial disturbance; nay, we may say that the state of torpor in the psychic and motor activities, so long characteristic in the patient, has almost entirely disappeared. Even the affective sentiments are aroused, and more particularly the religious ones. The patient weighs 82.500 kilograms.

February: The serum injections are suspended. Both the physical and the psychical conditions of the patient remain about the same. The number of epileptic crises is almost the same as in the preceding month, but with the difference that they are more intense. Indeed, the complete fits with muscular shocks in this month amount to three. The weight is 82.100 kilograms.

March: The serum injections are still suspended. The favorable condition of nutrition is unvaried. The patient weighs 82 kilograms.

April: In this month two injections of 20 cubic centimeters each are made. No remarkable variation is observed in the psychic state of the patient. The epileptic attacks present no modification either in number or intensity. The weight again undergoes a slight increase, reaching 82.500 kilograms.

May and June: There is no change in the patient's condition, although the injections have been again interrupted during all this period.

During continued suspension of the treatment, the general condition of the patient began to grow worse. This phase lasted four months, that is, until the end of November. During this time the convulsions occurred nine times a month. The weight decreased to 79 kilograms.

In November, 1900, the patient had a second and progressive relapse. The fits increased by about one a month, so that in May, 1901, he had 17 of them. The nutritive state of the patient also grew worse, so that the last monthly average was 77.500 kilograms.

In this period of progressive failure the psychosensorial phenomena also appeared again, but were less frequent than formerly. Therefore, we may say that the patient, more than one year after the suspension of the injections, had not descended so low as he was before the beginning of treatment. This also appears from the number of the crises and from the weight of the body as shown in the diary.

DIARY OF THE SEIZURES.

	Convulsions.	Vertigoes.	Weight in Kilograms.
August, 1899.....	32	12	75.500
September, 1899...	21	9	74.800
October, 1899.....	37	18	75.800
November, 1899...	19	3	77.300
December, 1899...	3	—	81.600
January, 1900.....	1	8	82.500
February, 1900....	3	5	82.100
March, 1900.....	2	7	82.000
April, 1900.....	4	3	82.500
May, 1900.....	5	1	83.200
June, 1900.....	4	2	81.700
July, 1900.....	9	1	79.800
August, 1900.....	9	—	80.200
September, 1900...	9	1	79.400
October, 1900.....	9	2	78.000
November, 1900...	11	4	77.000
December, 1900...	13	3	76.800
January, 1901.....	12	2	77.500
February, 1901....	16	2	77.800
March, 1901.....	16	4	77.500
April, 1901.....	16	3	77.700
May, 1901.....	14	1	77.500

Case IV.—Alfred V., a workman, thirty-two years of age, unmarried, of a strong constitution and without hereditary precedents. When fourteen years old, in sequence to a fright, he had the first epileptic fit. Then the fits began to appear at very short intervals so that they soon occurred two or three times in twenty-four hours. They were chiefly nocturnal. In the last three years, however, the fits increased in intensity. They showed a cumulative tendency, coming three or four times a day with three to five days' interval. The attack is sudden, violent and without cry.

The patient becomes pale, falls, and after a tonic period of two or three minutes presents general and intense muscular shocks which last about eight minutes. After these crises the patient enters into a state of deep mental confusion, which may last several hours. Then he suffers from a severe cephalalgia which generally continues for all the following day. For some years past he has suffered from insomnia, and lately he has become physically weak. His weight, verified at the end of October, 1899, is 70 kilograms. The patient is of a quiet, good disposition and fairly intelligent. In the intermission, when he has overcome the confusion and cephalalgia consequent upon the fits, his general condition is that of a healthy man. There is nothing worthy of mention regarding sensibility or general reflexes. For the past year he has taken 4 grams of bromide every day.

November, 1899: The treatment by injections is begun. In this case, also, we used the blood-serum of the patient, previously taken from his own veins. In the first month a total of 60 cubic centimeters of the serum was injected. The patient tolerates these injections without any disturbance. His general condition remains unchanged for the first twenty days. In the last ten days of the month we note some amelioration in the epileptic phenomena. The fits during these days do not follow each other in series as before, but are isolated, coming at periods of five days. Moreover, the attacks become shorter and less intense, lasting two or

three minutes. After these last fits the patient returns directly to his normal condition without suffering from the confusion and headache that for so long troubled him. He now seems also physically better and weighs 72.600 kilograms. He continues to sleep poorly.

December: The total quantity of serum injected is 70 cubic centimeters and there are no attacks. The patient feels a sense of easiness quite unusual. He now sleeps quietly at night and passes the day in reading. His general appearance has become much better; his color is healthy, his expression bright and he weighs 75.800 kilograms.

January, 1900: The total quantity of serum injected in this month is 60 cubic centimeters, and the daily dose of bromide is now brought down from 4 grams to 2 grams. The patient continues in general good health. Two fits occur in this month, but they are short and much less severe than was the first one, consisting only of a short period of unconsciousness with an increased degree of muscular tonicity. The weight remains 75.700 kilograms.

February: The total quantity of serum injected is 70 cubic centimeters. The fits are more frequent, coming at intervals of 8 or 10 days, but they are always isolated and much less intense than before. The muscular fits are but two in all the month. There is no psychic disturbance and the weight is 75.300 kilograms.

March and April: In these two months the serum injections are suspended and the patient continues in those conditions of amelioration he has reached through the treatment. The fits are always isolated as in the preceding months; some of them are still accompanied by muscular shocks, but the greater number are mere swoons. The weight of the patient during the month of March was 75 and in April 74.500 kilograms.

May: Twenty cubic centimeters of serum are injected. The general condition of the patient continues good. In all the month there are but two convulsive fits and one giddiness. The weight goes up to 76.300 kilograms.

June: The serum-injections are definitely suspended. The general state of the patient remains the same. The fits are infrequent. The weight is 76 kilograms.

From that time on, to May, 1901, the general condition of the patient remained in a state of stable equilibrium during which the motor crises come only with an average rate of twice or three times a month, and no longer caused the severe phenomena which were constant before treatment was begun.

The nutritional state of the patient is excellent. The weight, although the injections have been suspended for more than a year, is constantly, by some kilograms, greater than before the treatment.

DIARY OF THE SEIZURES.

	Convulsions.	Vertigoes.	Weight in Kilograms.
August, 1899.....	24	—	69.500
September, 1899...	27	—	70.100
October, 1899.....	19	—	70.000
November, 1899...	5	2	72.600
December, 1899...	—	—	75.800
January, 1900.....	—	2	75.700
February, 1900....	2	4	75.300
March, 1900.....	3	5	75.000
April, 1900.....	4	3	74.500
May, 1900.....	2	1	76.300
June, 1900.....	3	—	76.000
July, 1900.....	2	2	75.600
August, 1900.....	2	1	75.000
September, 1900...	3	—	74.200
October, 1900.....	1	—	75.500
November, 1900...	4	2	74.000
December, 1900...	1	—	75.300
January, 1901.....	4	3	73.500
February, 1901....	2	—	74.900
March, 1901.....	3	1	73.100
April, 1901.....	3	—	73.500
May, 1901.....	2	1	74.000

Case V.—R. Pius, an unmarried man, fifty-two years old, of strong constitution. The first epileptic symptoms appeared twenty years ago, following a fright. The patient soon began to have convulsive fits, occurring first with an interval of from five to six months, but which rapidly became more frequent, until they occurred every two or three days. For the past two years the fits are very frequent and are repeated two, three and even four times in the same day. They have a cumulative tendency. After these series of fits, periods of pause of two or three days follow. The convulsive fit is sudden and is preceded by a loud cry. The tonic state is usualy short, whilst the clonic state, which is always general, lasts about ten or fifteen minutes. The violent muscular shocks are followed by coma, which lasts about half an hour. When this disappears the patient goes into a state of deep general torpor that may last several hours. During this last stage he mutters to himself and has hallucinations of sight and hearing.

The intelligence has shown a remarkable and progressive decay, and at present both the psychic and motor phenomena are so defective that the patient cannot care for himself. The patient is completely unconscious of place and time; he remembers nothing, not even his own name; his face is cyanotic and his countenance stupid; he can hardly stand upright; he presents the Romberg symptom even when the eyes are open; and he walks so uncertainly and totteringly that he often has to be supported. During the past few months he passes the days sitting and the sleepless nights grumbling. He often voids urine and feces involuntarily. At present his sensibility is very obtuse; the cutaneous and tendinous reflexes are remarkably weak; the pupils are unequal and react to light very slowly; the tongue is always thickly coated. He has frequent eructations, and his breath has a penetrating acetone odor. He is getting progressively worse. Eight grams was the daily dose of potassium bromide administered during the two years he had been in the institution.

The method chosen for this patient was the re-injection of his own serum. In the beginning of February, 1900, 300 cubic centimeters of his blood were withdrawn, and on the 15th of the same month we began the treatment by injection. From this day until the end of March we injected a total quantity of 80 cubic centimeters of the said serum.

In the first half of March we noted general psychic and physical amelioration, which in the following days became sufficiently remarkable to attract the attention of the persons employed in the institution.

The fits are lessened in intensity and in number. Sometimes they are now limited to the cry and to a slight increase of muscular tonicity, without any shock. The complete fits, that alternate with the above said modification, in the month of March are reduced to about half the number of the preceding months. The patient presents at the same time a remarkable improvement in his psychical condition; his physiognomy grows livelier and more expressive; and the hallucinations after the fits, formerly so frequent, have disappeared. The patient now pays attention to questions and begins to interest himself in what happens around him. It is wonderful to see the progressive awakening

of his consciousness. He knows the place where he lives; he begins to have some idea, though confused, of his condition and can recollect well enough some facts that happened before he entered the asylum. He does not remember at all what has happened in the two years since he entered the institution, but he recollects well enough the occurrences of the month of March, the time of the first injections. He has become careful in his dress and for a month he has not been filthy. The general sensibility is less obtuse than before, and is almost normal. The cutaneous reflexes are still weak, while the tendon reflexes have now become more active. The pupils, which once were unequal and reacted feebly to light, now are equal and react well. The Romberg symptom is no longer present and the gait is normal. Physically, also, he is much better. The skin of the face is no longer cyanotic and wrinkled, but florid and bright; the tongue no longer whitish and foul, but clean and rosy; the breath no longer bad, and the eructations much lessened. He now sleeps quietly the whole night. His weight is 71.600 kilograms, that is, a gain of 6 kilograms in forty-five days.

April: In this month 60 cubic centimeters of serum are injected. The bromide is reduced from 10 grams a day to 2 grams. The epileptic crises are now much less numerous, and the general improvement, though slow, is always progressive. The patient now looks like a healthy man. He is conscious of his condition and appears good-humored and good-tempered. He likes to jest with his companions. He can form judgments fairly well, and the activity of his ideas, though limited, is ready. Although his conversation is defective in some respects, it is in general remarkably coherent. His sentiments of affection are also more in evidence. He interests himself about his family; he wishes to see them and often expresses the wish to be dismissed. His weight is 73.700 kilograms.

May: The serum injections are suspended, but the treatment of 2 grams of bromide every day is continued. As is seen from the diary, the epileptic crises present an inconsiderable increase in number, but their intensity is notably increased. After two severe convulsive fits, following each other at an interval of about two hours, the patient enters again into a state of great mental confusion and exhibits at the same time hallucinatory phenomena. Although he gets worse, he is not in as bad a condition as he was before he underwent the injections. The relapse is transitory and disappears after a period of about three days.

June: Injections are begun again and during the month 32 cubic centimeters of serum are injected. The general condition of the patient quickly improves. His weight reaches 75.500 kilograms. However, the fits are a little more numerous, though not very intense.

July: In this month the serum injections are suspended again and now quite definitely. However, the general condition of the patient continues to improve so that in the following September his weight attains an average of 77.600 kilograms, an increase of about 13 kilograms. During this period the convulsions recur on an average of four or five times a month. The hallucinatory phenomena with severe mental confusion that first reappeared in May come again, but only for one day.

October: In this month, and especially in the ensuing November and December, a slight relapse occurs. The motor crises increase to six a month. The weight decreases first to 75, then to 73 and then to 72.400 kilograms. The hallucinatory crises are present three times in these months, but they are always transitory and short.

From January, 1901, to May, 1901, the general state of the patient is practically unvaried. The fits always occur about six times a month, and the weight stays about 72.500 kilograms. The mental state remains fair. The psychosensorial crises grow a little more numerous in comparison with the preceding months.

	Diary of the Convulsions.	Weight in Kilograms.
December, 1899.....	28	65.200
January, 1900.....	34	64.800
February, 1900.....	26	65.000
March, 1900.....	6	71.600
April, 1900.....	2	73.700
May, 1900.....	4	73.400
June, 1900.....	4	75.500
July, 1900.....	5	75.700
August, 1900.....	5	76.900
September, 1900.....	4	77.600
October, 1900.....	5	75.100
November, 1900.....	6	73.000
December, 1900.....	6	72.400
January, 1901.....	7	72.300
February, 1901.....	6	72.300
March, 1901.....	6	72.500
April, 1901.....	5	72.600
May, 1901.....	5	72.900

Case VI.—G. Armida, a young girl, twelve years of age, without hereditary disease. The patient was well until ten years of age. She had had a normal physical and psychic development and had shown no sign of anomalies in character. Then, without any determined cause, she suddenly began to have epileptic convulsions which were very intense from the beginning. These became more frequent, so that during the past year they came fifty or more times a month. The fits are usually isolated and are both nocturnal and diurnal. Sometimes they come in series of three or four. They last about ten minutes, are attended with involuntary discharge of urine, and are followed by intense headache, lasting several hours.

Since the appearance of these crises the patient has greatly changed. She has grown very restless, disorderly and disobedient, becoming almost intolerable by reason of her spiteful and irascible temper. She has impulsive tendencies and a mania to steal. Her intelligence is very limited. Although she was for a time in the first class of the elementary school when seven or eight years of age, she does not even know the alphabet. Her sentiments of affection are very rudimentary. She does not pay attention to questions and she cares little for reproofs. She often utters silly and senseless words and laughs easily in an immoderate and foolish manner. She is very restless, always dancing and jumping, and trying to rush upon her neighbors to tear their hair and dresses. There are no paralytic disturbances. The sensibility to pain is rather diminished. The pupils are equal and react well to light. The tendon reflexes are exaggerated. The pulse is very slow. At the end of February, 1900, she weighs 34.600 kilograms.

In the beginning of March the patient receives injections of the blood-serum drawn from another less severely affected epileptic. During the month a total of 40 cubic centimeters is injected. Soon after the first injections a progressive amelioration is to be seen in her general condition. In the first fortnight the weight increases more than 3 kilograms and at the end of the month reaches 42.300 kilograms. There is also a remarkable change in character and tendencies; she grows by degrees less stubborn and irascible, and more orderly and obedient. The convulsive attacks are also greatly reduced in number and intensity. In the whole month the crises are reduced to nine, some of which are mere "absences." The nocturnal convulsions were the first to disappear.

In April 60 cubic centimeters of serum are injected. The patient continues to get progressively better. The facial expression has improved, in that stupidity is being replaced by intelligence. The impulsive tendencies have disappeared and she has grown very orderly, good and even-tempered. She is obedient and willing to work. The intellectual powers also present considerable amelioration. The patient answers reasonably to questions, remembers the time when she was tormented by numerous fits and wants to be sent back to her parents. The general reflexes and sensibility are normal, the pulse is regular. The weight has increased to 48.300 kilograms; an increase of about 14 kilograms. No epileptic crises this month.

May: A total of 45 cubic centimeters of serum is injected. The patient has no epileptic crises. She is always good, gentle and obliging. The weight has now reached 49.200 kilograms.

June: A total injection of 30 cubic centimeters of serum. There is no epileptic crisis and the good condition of the patient remains unvaried. Whereas, for a long time the girl has been taking a daily dose of 6 grams of bromide, by a slow and progressive diminution of the dose, the drug is now completely suspended. The weight is 50.100 kilograms, that is, an increase of 16 kilograms in five months. On the 15th of this month her menses appear for the first time. They are abundant and last for three days.

July: The serum injections are entirely suspended. The girl continues in excellent general health. Her menses come in this month again and from this time they continue regularly. She has no epileptic phenomena. The girl has undergone complete transformation in physiognomy and character; she looks like a normal, intelligent person; she grows better, milder and more active. In this month she begins to go to the institution school, where she soon distinguishes herself by her diligence and progress. In a short time she learns to read and write. She behaves well to every one. In dress she is modest, but rather elegant.

From January, 1901, until the present writing the weight of the girl remains almost unvaried, but in other ways she is constantly improving.

March: She is no longer to be regarded as the brutish creature she was before the treatment. She is a fine, healthy girl, with correct manners. She dresses carefully and with elegance. She is thirteen, but appears to be at least sixteen.

Toward the end of May she is released from the institution and returns to her family, where she employs herself with domestic duties, helping her parents as a healthy person.

	Diary of the Convulsions.	Weight in Kilograms.
January, 1900.....	58	35.100
February, 1900.....	62	34.600
March, 1900.....	9	42.300
April, 1900.....	—	48.300
May, 1900.....	—	49.200
June, 1900.....	—	50.100
July, 1900.....	—	51.300
August, 1900.....	—	54.400
September, 1900.....	—	55.200
October, 1900.....	—	57.500
November, 1900.....	—	58.700
December, 1900.....	—	60.200
January, 1901.....	—	60.300
February, 1901.....	—	60.250
March, 1901.....	—	59.600
April, 1901.....	—	59.500
May, 1901.....	—	59.700

Case VII.—Charles M., forty-five years old, a bookkeeper, has been in our hospital sixteen years. His mother was hysterical and his father died of progressive paralysis. Since early childhood the patient presented epileptic symptoms under the form of a sudden waking in the night with loud cries and passage of urine. From infancy he was eccentric, irascible and obstinate. Soon intense convulsive fits began to appear, at first only by night, then by day. They were limited to four or five a month. The epileptic crises grew more frequent, taking the form of vertigoes, always with loud warning cries.

When twenty-five years old he married and soon afterward severe psychic and psychosensorial disturbances appeared in the form of maniacal excitement with hallucinations of sight and hearing. Commitment to this institution was soon necessary. In the first years the disease had several periods of intermission. He was frequently committed here and then released. In 1885 he entered definitely, for the severe psychic disturbances had assumed a lasting character and his intellectual powers had grown much weaker.

Although the bromide treatment was continual and in high doses, he became progressively worse. For ten years the epileptic crises, in the form of convulsive fits and vertigoes, were repeated with remarkable frequency, occurring from three to five times in the twenty-four hours. In the past three years, however, these crises have notably lessened in number, and recently they have been reduced to four or five a week, the giddinesses being in the majority. The patient has usually one, two or even more periods of excitement each month, which last two or three days. During this time he is confused, disorderly, very irritable, and sometimes violent. The patient is becoming demented, as is shown by his difficulty of expression, his lack of perception, his deficiency of association, his absolute want of affective sentiments and by his failure of memory. The pupils are equal, but scarcely react to light. The cutaneous and tendon reflexes are diminished. Standing upright, even with open eyes, makes him dizzy. The sensibility in general is obtuse, but there is nothing remarkable in the special senses. The general nutrition is always fairly good. The weight is about 75 kilograms.

In January, 1900, the patient was bled abundantly, for the auto-serotherapy was to be tried in this case.

In February 60 cubic centimeters of the serum are injected at different times. The bromide treatment, on account of the extraordinary severity of the case, was continued. The patient does not react acutely, but gets slowly and progressively worse. He is moodier than ever, and in the second half of the month he grows still more fretful and confused. He suffers from continual anorexia and has persecutory ideas. The convulsive fits and the vertigoes are increased in number and the weight diminishes about 2 kilograms.

March: In this month only 50 cubic centimeters are reinjected. The patient grows worse and worse. The epileptic crises have again become more numerous and the patient has two attacks of mental confusion and irritability, during which he is very disorderly and impulsive. These two attacks last three days each. In the intervals the general reflexes, which in the preceding months had diminished, augment. The weight goes down to 71.500 kilograms.

April: Auto-serotherapy is abandoned.

On the 15th of May the injections are resumed, but now with the blood-serum drawn from another epileptic. During the time when no injections at all were given, the patient seemed somewhat improved. No psychic phenomenon worth mentioning appeared in the forty-five days.

On the 15th of June, after total injections of 35 cubic centimeters of serum, we suspend this new treatment also, as it, too, was unsuccessful. The patient grew worse; he suffered from obstinate headache and from mental confusion stronger than ever, attended with excitement. Even the motor crises and the attacks of vertigo took place more frequently, and the general nutritive conditions were worse again. The weight at the end of June was about 68.800 kilograms.

In spite of the definitive suspension of the injections the patient, instead of recovering his habitual state, falls in the following months, *i.e.*, from July until the end of November, into a state of constant mental confusion with serious psychic phenomena, and an increase of the motor crises, which in this period come about fifty times a month.

In December and January, 1901, the patient began, little by little, to get better. The motor crises and the vertigoes lessened every month. His physical improvement was steady, and the psychic phenomena, especially the great mental confusion, grew less intense. At the end of one year and a half, then, he was in the same condition as he was before he underwent the injections.

Diary of the Seizures.

	Convulsions.	Vertigoes.	Weight in Kilograms.
December, 1899...	6	9	74.700
January, 1900.....	6	9	75.000
February, 1900....	9	19	73.000
March, 1900.....	8	21	71.500
April, 1900.....	12	20	72.800
May, 1900.....	10	12	70.300
June, 1900.....	18	22	68.800
July, 1900.....	22	34	67.300
August, 1900.....	28	47	67.000
September, 1900...	27	41	66.500
October, 1900.....	35	59	66.400
November, 1900...	34	68	67.000
December, 1900...	22	45	67.800
January, 1901.....	20	38	68.300
February, 1901....	19	40	69.000
March, 1901.....	16	30	70.200
April, 1901.....	12	24	70.000
May, 1901.....	10	29	70.200

Case VIII.—Albertina Bus, twelve years old, of a delicate physical constitution. Her mother's parents are neuropathic. The girl seems to have reached the age of nine years in normal physical condition, and without suffering from any disease. Being very quick and intelligent she went early to school, where for her talents and good character she often won the praise of her teachers.

Three years ago the girl had typhoid fever. On recovering she had for a few days abundant and frequent epistaxis. She then developed convulsive fits of an epileptic character, which from the first were both intense and long. The fits came either suddenly or with a little warning cry. She always lost consciousness, and was dull and confused for some hours afterward, and often the attack was followed by a severe cephalalgia, which lasted the greater part of the day. During the fit she frequently voided urine involuntarily.

For some months the fits occurred once or twice a week, but then they became exceedingly numerous, so that in the past fifteen months they occurred from five to seven times or more in the twenty-four hours. They were always intense and complete, with violent muscular shocks. They came more frequently by day than by night.

Contemporaneously with the appearance of the convulsions, a remarkable change was noted in the psychic state, and especially in the girl's character. She grew restless, quick-tempered and often revengeful. She had insomnia and anorexia and suffered from intense cephalalgia; therefore she soon exhibited a great and progressive deterioration. The bromide and tonic treatment that was regularly kept up for more than two years was ineffectual, both as to her general health and as to the number of the epileptic crises.

The girl entered this institution in May, 1900. She was very thin and dejected; she weighed 24.300 kilograms. The pupils reacted normally and the tendon reflexes were exaggerated.

On the first of July, 1900, the bromide treatment was entirely interrupted and the little patient underwent the treatment by injection, the blood-serum being obtained from a confirmed adult epileptic. The injections were made gradually, the first dose being 3 cubic centimeters. From the first the girl tolerated the injections well. At the end of the month, by increasing rapidly the dose, we had injected 65 cubic centimeters of serum.

At first the patient suffered from slight depression associated with some loss of weight, but afterward, especially in the second half of the month, she got remarkably better, both as to nutrition and as to the epileptic symptoms. The progress of the case was soon evident. The convulsions grew less intense and less numerous, so that on the 21st of the month they appeared for the last time. Meanwhile the insomnia, cephalalgia, fatigue and general depression from which the girl had suffered so long disappeared by degrees. Her appetite increased rapidly and at the end of the month she had gained 3 kilograms. Her facial expression was better and she became very good-tempered.

August: In this month 36 cubic centimeters of serum are injected in three doses. No phenomenon of any kind appears and the girl improves wonderfully. She is intelligent and good, and applies herself during the day in reading and embroidering. She often writes letters full of love to her parents, informing them of her progressive improvement. The weight increases to 31.500 kilograms.

September: The serum injections are definitely abandoned. Nevertheless the girl continues to improve and presents no longer any symptom of her former disease. The color of her skin has become rosy and she is well mannered and kind. The weight has now risen to 34 kilograms, that is, an increase of about 10 kilograms, in a period of three months.

In the month of October, her parents insisting upon it, the girl returned to her family. Her weight at the time of her release was 34.400 kilograms.

	Diary of the Convulsions.	Weight in Kilograms.
May, 1900.....	124	24.300
June, 1900.....	132	24.300
July, 1900.....	16	27.800
August, 1900.....	—	31.500
September, 1900.....	—	34.000
October, 1900.....	—	34.400

At home the girl remained in the best physical condition and without any epileptic phenomenon for more than two months, that is, until January, 1901. Then, according to information obtained from the doctor of her family, she was taken with chronic bronchial catarrh, which caused emaciation and anemia. A few convulsions appeared after this, but they ceased in the following month, after gradual recovery from the bronchitis.

[To be continued.]

ORIGINAL ARTICLES.

ONE WAY TO FIGHT CONTAGION.

BY CHARLES V. CHAPIN, M.D.,
OF PROVIDENCE, R. I.

An editorial in the Medical News not long since referred to the discouraging experience of a city which, after adopting new and stringent measures for combating communicable diseases, found that the diseases the control of which was attempted had increased rather than diminished. I suspect that this experience is not unique. We used to hear a great deal of hopeful prophecy about stamping out scarlet fever and diphtheria, but we still have them with us, though it is true they are not so common as in former years.

A study of the statistics of communicable disease in our cities indicates only a moderate success for our present methods of notification, isolation and disinfection. The history of Boston, for instance, is a discouraging one. Boston has more ample hospital facilities for caring for scarlet fever and diphtheria cases than any other large city. Its physicians are not surpassed by any as regards intelligence, education and public spirit. The proportion of cases reported is very large. Regulations in regard to isolation are stringent and unusually well enforced, yet the number of cases of scarlet fever and diphtheria is not perceptibly less than in other cities. In England, where many more than half the cases of scarlet fever and diphtheria in the large cities are removed to hospitals, these diseases prevail almost as extensively as in the United States. It is doubtless true that the increasing practice of isolation in these diseases has had its influence in their diminution, but the progress made has not been nearly so great as was hoped.

The writer has little doubt as to what is the chief reason for this. It is the existence in the community of a considerable number of infected persons who are only very slightly sick, or are not sick at all. A careful study of the cases of these diseases as they occur demonstrates that it is rarely possible to connect them with existing cases already recognized. Our methods of isolation, so far as they are applied to acknowledged cases, seem to be effectual. Every health officer is forced to admit that it is the unknown sources of infection which cause the trouble. The milder the infection, the less likely are the infected persons to be known, and the more difficult it is to control them. The present outbreak of smallpox is due to the mildness of the affection, very many cases being unrecognized. That many persons who are only slightly ill, or perhaps entirely well, are dangerously infected with diphtheria is well known. Bacteriological studies reveal the fact that from two to three per cent. of healthy persons are infected with growing diphtheria bacilli. It is true that the bacilli are not virulent in every case, but even if they are virulent in only a small proportion, we yet have enough to render it likely that these infected well persons are the chief factor in the spread of the disease.

While we are searching for better methods of dealing with these diseases, there is one line of warfare against them which ought to be pursued more energetically. If unrecognized infection is moving about among us, each of us must learn to protect himself. In diphtheria, tuberculosis, and scarlet fever in its early stages, and doubtless in smallpox, the virus is contained in the secretions of the nose and mouth. People should be taught to take care of their own secretions and to avoid contact with the secretions of others. In other words, they should be taught to be clean.

This matter was recently brought up in the Massachusetts Association of Boards of Health by Dr. Theobald Smith, and a committee of which he is a member drew up a report urging the teaching of cleanliness among school children and suggesting methods therefor. The means urged were as follows: (1) Lectures to teachers on the relation of cleanliness to health; (2) the distribution of circulars on this subject; (3) object teaching by the school department. The municipality should set an example in cleanliness in the provisions made for the pupils. The drinking cup used in common by the pupils should be abolished. The greatest care should be taken of the text-books, especially if furnished by the State, and soiled books should never be given out. Pencils, pens, etc., should be absolutely separate for each pupil. If slates are used each child should be required to use for erasing a cloth or sponge kept in its desk. If modeling clay is used each pupil's portion should be kept by itself. In general, it may be said that the school authorities should provide that each pupil shall have its own private school material, and that as little as possible shall be used in common.

In accordance with this plan, the following circular has recently been distributed among the teachers in the public schools in Providence, and similar but briefer rules will be distributed among the children. This circular is here given because it is believed to set forth some of the principles of cleanliness which should be practised and the reasons therefor.

Health Department.

Suggestions for the Teaching of Cleanliness Among School Children.

The poisons of some of the common and also of some of the most loathsome diseases are frequently contained in the mouth. In such cases anything which is moistened by the saliva of the infected person may, if it touches the lips of another, convey disease. The more direct the contact the greater the danger.

It is the purpose of health officials to keep in isolation all persons having communicable disease during the time that they are infectious. But in many cases this is impossible. Little restraint is put on certain mild diseases, as measles, whooping-cough, chicken-pox and mumps, and even such diseases as diphtheria, scarlet fever and tuberculosis are frequently so mild as to be unnoticed and children affected with them mingle freely with others. It is probable that in such

cases one of the chief vehicles of contagion is the secretion of the mouth and nose. It is believed that much can be done to prevent contagion by teaching habits of cleanliness. But if such instruction is to be effectual it must be continuous. The teacher must notice and correct violations of those rules as habitually as the violations of the more formal school rules are corrected.

Even if the question of disease and contagion did not enter into the matter at all the subject ought to be given more attention by teachers. Our schools should not only teach reading, writing and arithmetic, but it is perhaps quite as important that they should inculcate cleanliness, decency, refinement and manners. Cleanliness should be taught for its own sake even if it had no relation whatever to health.

TEACH THE CHILDREN

Not to spit; it is rarely necessary. To spit on a slate, floor, or sidewalk, is an abomination.

Not to put the fingers into the mouth.

Not to pick the nose.

Not to wet the finger with saliva in turning the leaves of books.

Not to put pencils into the mouth or moisten them with the lips.

Not to put money into the mouth.

Not to put pins into the mouth.

Not to put anything into the mouth except food and drink.

Not to swap apple cores, candy, chewing gum, half-eaten food, whistles or bean blowers or anything that is habitually put in the mouth.

Teach the children to wash the hands and face often. See that they keep them clean. If a child is coming down with a communicable disease it is reasonable to believe that there is less chance of infecting persons and things if the hands and face are washed clean and not daubed with the secretions of the nose and mouth.

Teach the children to turn the face aside when coughing and sneezing, if they are facing another person.

Children should be taught that their bodies are their own private possessions, that personal cleanliness is a duty, that the mouth is for eating and speaking and should not be used as a pocket, and the lips should not take the place of fingers.

A NEW CYSTOSCOPE, FOR THE SIMULTANEOUS CATHETERIZATION OF BOTH URETERS, AND FOR DOUBLE-CURRENT IRRIGATION OF THE BLADDER.

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THE knowledge of the value of a comparison of the divided urines, collected simultaneously from both kidneys, as a means of diagnosis, and for the purpose of determining the degree of functional power of either or both kidneys, is rapidly gaining ground among surgeons. I need only mention the work of Albarran, Casper, Kümmel, Pasteur, Kelly and Brown in this field, and refer to the recent monograph of Casper and Richter for a complete exposition of the desirability of determining the condition and function of the kidneys prior to operation thereon.

With the single catheterizing cystoscope, the insertion of the first ureter-catheter was a comparatively easy task; but the insertion of the second (the first remaining *in situ*) was exceedingly difficult—at times even impossible. Owing to the fact that in order to allow the catheter to remain in the ureter, it was necessary, in withdrawing the cystoscope, to turn the entire instrument (and with it the catheter) so that the beak pointed upward, it frequently happened that the catheter became turned about the lamp and, owing to the occasionally present cramp-like contraction of the compressor urethræ muscle, pressed tightly against the instrument, and, by the withdrawal of the latter, also drawn out of the ureter. If the operator succeeded in leaving the first catheter *à demeure*, it frequently occurred that, on the insertion of the cystoscope a second time, the first catheter was found to lie in the way, to obscure the field of vision and to make the insertion of the second catheter into the other ureter very difficult, or impossible. On withdrawing the cystoscope the second time, there was present the additional danger that, owing to the compression of the first catheter against the outside of the cystoscope, this catheter or both catheters would be drawn out of the ureters.

To obviate these difficulties has been, of late, the aim of several. Casper has devised an instrument for the catheterization of both ureters, and it is described and illustrated in the monograph published by himself and Richter. Tilden Brown and W. K. Otis have each devised instruments for the same purpose.

The instrument which I have devised, and which is here described and illustrated, is designed to permit (1) the examination of the entire bladder; (2) the renewal of the filling-fluid, without removing the instrument, should the fluid become turbid during the operation; (3) the catheterization of one or both ureters during the one sitting; (4) the facilitation of the procedure of leaving one or both catheters *à demeure*.

It is a modification of the improved Nitze-Albarran catheterizing cystoscope and consists of a cystoscope upon which is the *movable* catheterizing portion (see Fig. 1). The latter contains two separate tubes in which the catheters pass, which terminate, at the outer end, in two separate cannulæ capped by the usual screw caps. At the inner end they terminate in two small, movable knee-mechanisms, which are controlled and moved by the large screw, as in the single catheterizing instrument. The size of the instrument is the same as that of the single catheterizing cystoscope (average 23 Charrière; 18 in the short, 28 in the long axis). The catheters to be used are somewhat smaller than those used for the old

instrument. I prefer to use one black and one brown catheter, in order to avoid all chance of mistake in the collection of the urines. There are also two stop-cocks to replace the screw-caps upon the cannulæ, when double-current irrigation is to be employed. The catheterizing portion, being removable, can be sterilized by boiling. The cystoscope itself must be sterilized by immersion in an antiseptic solution.

Fig. 1.

The method of using is as follows: The black catheter is inserted into the cannula upon the operator's left hand, the brown into the right. The instrument is then inserted as is the old instrument, and one or other ureter sought for and catheterized, the catheter being inserted about 4 to 5 cm. into the ureter. The knees are now turned down again, and the other ureter is located. During this latter procedure the first catheter moves out of the field of vision, and may be entirely disregarded by the operator. The second ureter is now catheterized, the knees again turned down, and the instrument turned so that the operator may assure himself, before withdrawing it, that both catheters are *in situ* (see Fig. 2). The lamp is then extinguished and allowed to cool, and the cystoscope turned upward, within the catheterizing portion, so that the beak points toward the median line of the abdominal wall, the catheterizing portion meanwhile being held, and continuing to point downward (see Fig. 3). The instrument is then slowly withdrawn, its removal being compensated for by a gradual insertion of more of the catheters into the cannulæ. When the knees of the instrument, with the catheters, appear at the meatus, the catheters are fixed, at the urethral orifice, with one hand, and the cystoscope steadily withdrawn with the other. It will be seen that, during the process, the black catheter has come to lie on the patient's left side, and the brown on the right. It is thus an easy matter to distiguish and collect the separated urines. It will be found, on following the above directions, that the entire procedure is much easier to carry out than with the old instrument. It has been used by me, since its completion, in three instances, two in the male and one in the female, and with *complete satisfaction.*

Fig. 2.

Should the fluid become turbid, during the course of the examination, the catheters and screw-caps may be removed and the stop-cocks, attached to rubber tubes, inserted into the cannulæ. The streams then, flowing through separate tubes, are kept distinct, and the one tube may be used for the inflow, the other for the outflow. It is, of course, not intended that clots or large shreds be removed, but simply the filling-fluid removed. In refilling, after irrigation, one stop-cock is closed, and the bladder filled through the other tube. Should it be desired to use the instrument as a single catheterizing cystoscope, one tube may easily be closed with the stop-cock.

Fig. 3.

The instrument was made for me by the Kny-Scheerer Company of New York, and represents in its entirety a product of American workmanship. It is a pleasant duty, in closing, for me to thank Mr. R. Kny, of the above firm, for his great kindness in placing their resources at my command, and to their assistant, Mr. Farner, for the masterly way in which all my suggestions were carried out.

717 Madison Avenue.

CONGENITAL DEXTROCARDIA.

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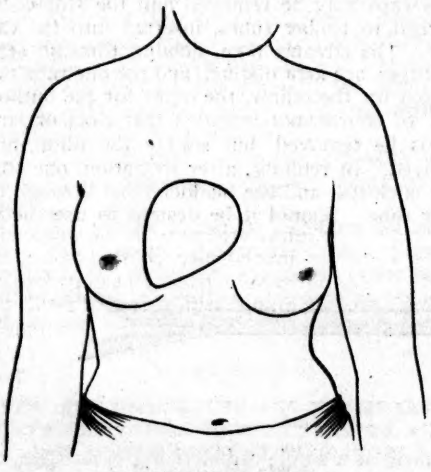
CASES of transposed viscera are always interesting, because they are rare and because they are deviations from the normal. Dextrocardia has been observed before, but it is rare enough for each new case to afford some points of interest and to justify its being recorded.

Mrs. F., aged sixty-nine years, widow of a clergyman, was referred to me from West Virginia. She consulted me for pains which she described as radiating down her arms. She also complained of digestive disturbances with the formation of gas in the stomach. She told me she had always contended that her heart was on her right side, but her doctor had laughed at the idea. There was, she said, such a "surging" on that side whenever her attacks of palpitation came on. I asked for an examination more out of curiosity than for any other reason. The examination revealed the following condition: The apex beat was an inch and a half below and half an inch within the *right* nipple. The superficial area of dulness extended from the apex, at a point between the fifth and sixth costal cartilages, to the median line of the sternum on the *right side;* thence up to the level of the upper border of the fourth costal cartilage, and from this point back to the apex. The diagram shows the position occupied by the heart. The sounds were normal at



Congenital dextrocardia.

the apex and pulmonary interspaces, and the condition had never been the source of any discomfort to her except at times a disagreeable palpitation, and in her younger days a tendency to syncope, which was easily induced by any sudden emotion or exertion. She had all her life been a remarkably healthy woman until within a few years. She had a small tumor removed from her left breast, at the age of eighteen, which was due to a traumatism. About six years ago the right breast was operated on for a small mass which was undoubtedly carcinomatous. She is now somewhat cachectic and the telltale pains in the arms led me to look further for secondary trouble. A small indurated area could be felt at the pyloric end of the stomach, which, together with the history and the digestive disturbances, made the diagnosis of malignant disease clear.

This trouble however has no bearing on the position of the heart, which has existed since birth, and is mentioned simply to emphasize the significance of the aching pains in the arms as betokening secondary involvement with malignant disease. No displacement of any other viscera could be detected, and the case is of interest only as an anomaly.

SOMNOLENCE AND LOSS OF MEMORY RESULTING FROM CHOLESTEATOMA OF THE MIDDLE EAR.[1]

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THE Proceedings of the Philadelphia County Medical Society for December, 1901, contain the report of a case of "Somnolence Caused by an Ear Lesion" by Dr. W. G. B. Harland. The patient was a boy thirteen years of age, whose personal history somewhat reminded us of that recorded of Dickens' fat boy in "Pickwick Papers," in that he would fall asleep when sent to a store and waiting for his order to be filled, or when at table, and indeed on every other possible occasion. Otherwise the boy was healthy and his condition was accounted for by the presence of a chronic suppurative otitis media, the pus of which had been dammed up by a mass of cerumen in the external auditory canal. After free exit had been given to the discharge, the boy's symptoms cleared up.

The case recalled to my mind one of a somewhat similar nature which came under my care last summer.

H. B., aged twenty-three years, a master mechanic, was referred to my office by Dr. J. E. Talley on July 9, 1901. For upward of twelve years he had had at intervals a discharge of foul-smelling pus from the left ear. This symptom, however, seems to have given him but little concern, as he had never considered it necessary to undergo any course of treatment for its relief. During the last year the patient had noticed that his memory was failing and that he was subject to attacks of intense sleepiness alternating with occasional headaches. This forgetfulness was such that he could not remember the simplest things; he would forget the names of people, and

[1] Read before the Section on Otology and Laryngology of the College of Physicians of Philadelphia, Jan. 15, 1902.

the things which he had intended to do in his work, and was absolutely unable by any effort to concentrate his memory so as to remedy the defect. Examination, after cleansing out a quantity of inspissated pus from the external auditory canal, revealed almost total destruction of the drum with a mass of granulation tissue covering over the upper part of the exposed middle-ear cavity. It was impossible to detect dead bone with the probe. There was marked bulging of the upper posterior wall of the external auditory canal. Operation was advised, and on July 13th, assisted by Dr. Walter Roberts, I opened the mastoid and proceeded to remove a great quantity of dead bone in immediate proximity to the middle-ear cavity with huge cholesteatomatous masses in the interior of the mastoid process. The patient made an uninterrupted recovery, and when last seen in December, 1901, five months after the operation, told me that he had had absolutely no return of headache or of somnolence, and that his relatives noticed that he was able to remember things and was much brighter mentally. There was no discharge from the ear.

In this case I had expected to find some evidence of meningeal trouble upon opening the skull, but, although a considerable surface of brain membrane was exposed, there was no evidence whatever of any pathological condition.

In the discussion of Dr. Harland's paper Dr. Burnett remarked "that somnolence from otitic influences is rare and its etiology obscure." He stated that the case of Dr. Harland was the only one which had come under his personal observation. Dr. Burnett divides these somnolent and syncopoid states depending upon aural lesions into two classes, those in which there is extension of the suppuration of the purulent ear disease to the cerebral surface, and those in which the brain symptoms are due to direct inward pressure of the stapes.

I do not doubt that in the case which I have reported the cerebral symptoms were the result of at least a congestion of the meninges and possibly of a slight recurrent meningitis. In view of Dr. Burnett's statement as to the rarity of the condition it seems to me that the case is worthy of record.

URTICARIA OF THE UPPER RESPIRATORY TRACT.[1]

BY LEWIS S. SOMERS, M.D.,
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THE erratic and migratory character of the lesions of urticaria upon the dermal surface and their extensive distribution would naturally lead one to expect the presence of the eruption upon the mucous membrane of the upper air tract with greater frequency, and, although a careful search of the literature reveals less than two score cases, yet the affection undoubtedly involves the mucosa much more frequently than the reports of such cases would indicate. One of the earliest recorded instances of the disease involving the throat was in 1862, in a male who had taken a large dose of quinine for malaria and immediately developed severe itching of the neck, chest, arms and legs, accompanied by the typical wheals of urticaria, continuing until the following day, when a sudden attack of suffocation with laryngeal stridor and aphonia developed, but all the symptoms rapidly subsided under treatment.

That the mucosa is not involved more frequently is difficult to explain, although, as suggested by Packard, its relative infrequency is probably best explained by the absence of irritation of the mucosa such as is produced on the dermal surface by the clothing and unwarmed air. This is hardly plausible even as a negative explanation, however, and some more subtle factor must exert its prophylactic action in the large number that suffer from dermal urticaria and in whom the respiratory tract presents no abnormal changes.

Corresponding to the affection as seen upon the cutaneous covering, it may be either acute, when the symptoms usually assume a most alarming aspect, or chronic, as is more rarely the case. In either variety, but especially in the former, two types of the disease may be clearly distinguished, the first being that in which the skin eruption makes its appearance primarily and is followed by the development of the wheals upon the mucous membrane, while in the second type, the difficulty of diagnosis is greatly enhanced by the appearance of the respiratory symptoms first, followed later by the skin eruption. In this latter form the disease closely simulates other laryngeal affections accompanied by edema and respiratory distress, and in the absence or delayed appearance of the cutaneous wheals the diagnosis may be impossible, the disease not being recognized at all, or, as has been suggested by others, the affection is considered to be asthma.

Milton has reported two cases, the first showing the usual clinical variety with the initial skin lesion and later involvement of the mouth and throat, while his second patient belonged to the latter class, beginning with great difficulty in breathing, which subsided upon the development of wheals on the skin. Merx illustrates the chronic form of the disease in a neurasthenic male of thirty-four years, with repeated attacks of dysphagia and burning in the larynx and pharynx which disappeared in a few hours after treatment. The wheals came on in a series of irregular attacks and during its course the uvula, soft palate, tongue, epiglottis and vocal cords were involved. Gaudier records an interesting case in which there was sudden onset of itching and dryness of the mouth with a foreign body sensation in the throat. The mucous membrane of the oropharynx and epiglottis was swollen from the wheals, but no dermal lesions appeared during the attack, the diagnosis being made by the sudden appearance of the affection after partaking

[1] Read before the Northwestern Medical Society of Philadelphia, Nov. 5, 1901.

of food, the physical appearance of the lesions, and its complete disappearance in twenty-four hours.

The acute febrile form of urticaria is but rarely seen. It appears suddenly, the eruption is scarlet in color, with great swelling; and, while the face, trunk and limbs are usually the seat of the eruption, it may involve the larynx and pharynx with the production of dangerous obstructive symptoms.

The following case was one in which urticaria appeared simultaneously on the dermal and mucous surfaces and bore a definite relation to the ingestion of improper food.

Miss L. A., eighteen years of age, of robust health and without any history of illness except hay-fever which had existed from August to October for three years. The attacks of hay-fever were typical even to the hour and day of their appearance, and she had suffered from the constant watery nasal discharge, irritated conjunctivæ, sneezing, palate and chin pruritus until the first frost, when the symptoms would subside and no demonstrable lesions of the upper respiratory tract would be evident. On several occasions she had slight attacks of urticaria limited to the trunk and arms, and she was able in every attack to trace the exciting cause to the partaking of almonds of which she was extremely fond. Other food such as strawberries, shellfish and even nuts of various sorts, with the exception of almonds, could be partaken of with impunity; for a number of years she had given up eating almonds on this account.

While under treatment during her third attack of hay-fever, I was hurriedly summoned as it was supposed she was having an attack of fatal suffocation. On my arrival there was great dyspnea, inspiratory efforts were short and feeble, the face was cyanosed, there was suprasternal retraction, and the mouth was widely open in the patient's violent efforts to obtain sufficient air. Her features were unrecognizable from the presence of multiple wheals, and, between gasps in a voice which was almost aphonic, she complained of great physical prostration and of burning and itching from the urticarial eruption which covered the entire surface of her body. The tongue was swollen so that it was protruded with great difficulty, the uvula was lobulated, due to the presence of two giant wheals, and almost filled the arches, while the mucous membrane of the mouth, pharynx, epiglottis and the aryepiglottic folds as far as could be seen were swollen from the eruption.

The oropharynx was sprayed with a solution of cocaine and, as the swelling subsided, the larynx was seen to be involved to such an extent that but a minute fissure existed below the false cords, which were almost approximated; below this point, however, no eruption was apparently present. She was given small pieces of ice in the mouth, a dilute carbolic wash was used on the dermal surface and the bowels were freely moved by high injections, later followed by a large dose of salts. The cocaine and ice rapidly reduced the swelling of the respiratory tract, within an hour the mucous membrane had resumed its usual aspect, and all the symptoms referred to this particular region had disappeared, with the exception of nasal stenosis, which had not been considered to any extent previously. On examination of the nasal chambers the mucosa was seen to be covered with wheals, but as they were subsiding no direct treatment was applied. The skin changes were about five hours in disappearing; on the following day she was perfectly well. An interesting phenomenon noticed during the height of the attack was the presence of apparently complete deafness, due to the mucous membrane of the tympanic cavity and Eustachian tubes being occluded by the wheals. The cause of the attack was readily explained, as she had given way to her appetite for almonds and within a few minutes after partaking of a considerable number the threatening symptoms developed.

The predisposing cause as regards the liability to attack of the upper respiratory tract is apparently unknown; in my case no structural abnormalities existed; while this is apparently true in the majority of reported cases there are a few in which slight deviations from the normal were observed, but the evidence is against this playing any part in the tendency to the eruption here. A general idiosyncrasy of the patient, a peculiar vasomotor weakness of the mucosa and the effect of an exciting cause, such as the eating of improper food in the individual case, must be taken into consideration. The association of urticaria of the mucosa with hay-fever is rarely observed, although its presence upon the dermal surface is not at all uncommon and the disturbed vasomotor equilibrium at such times strongly predisposes the hay-fever sufferer to attacks of the ordinary forms of urticaria in the presence of an active exciting cause.

In a person predisposed to urticaria the development of the wheal upon the mucous membrane of the nose, pharynx or larynx may result from any of the usual exciting causes, such as irregularities in diet, certain foods and drugs and contact with animal or plant life, these factors, of course, operating upon the dermal surface in the majority of instances, while the mucous membrane involvement may be considered as a complicating incident, except in those cases in which the membrane is at first affected as the result of the ingestion of certain foods or drugs, or due to an idiosyncrasy of the individual as yet undetermined.

In severe cases the general symptoms antedating the appearance of the wheals upon the mucosa are often distressing, as in a case reported by Woodbury, in which there were rapid pulse, profuse perspiration on the forehead and fainting, while in Chittenden's patient there were attacks of recurrent hematemesis. Before the eruption appears a vague feeling of distress may be bitterly complained of and great physical weakness and nausea may also be experienced, while in cases of

a mild type little or no complaint may be made until difficult breathing is first noticed.

Except for the nervous element dependent upon the skin lesions, the majority of the general symptoms, such as the change in pulse-rate and the feeling of impending evil, are the result of the beginning impairment of respiration, this usually being the first symptom noted, while if the posterior pharyngeal wall or esophagus be involved dysphagia becomes marked. The suffocation increases with the increase in size and number of the wheals, the face becomes cyanosed, the voice is hoarse or to a great extent lost, depending principally upon the laryngeal involvement, although it may be considerably altered from the swelling of the uvula and epiglottis.

A sense of burning and pruritus may be referred to the affected mucous membrane, or one may preponderate for a time with sudden alternations in the character of the subjective phenomena. This is especially noted in mild cases, as in those in which the respiratory distress is great little attention will be paid to minor symptoms, so that the degree of paresthesia of the mucosa bears little or no relation to the extent of the swelling. In the chronic form this pruritus may be quite prominent and resemble the sensation produced by a foreign body, as in the case of chronic urticaria of the mucosa seen by Freudenthal. When the epiglottis or larynx becomes involved, the dyspneic symptoms rapidly assume a most alarming aspect and a condition in all essentials similar to edema of the glottis results, with the suffocative attack increasing in intensity as the air space becomes more and more encroached upon. The wheals here and higher up in the air passages are invariably accompanied with some increase of the local temperature, but this, like the pruritus, is fugacious in character and rapidly disappears as the lesions subside.

In the acute cases, the mucous membrane of the oropharyngeal cavity, nose and larynx may be involved in part or as a whole with the typical swellings of the disease, differing in no respect from those seen on the skin, but appearing as tense, shining elevations, of varying shades of red, with a lighter hue at the summit of the elevation, while in some cases the apex of the wheal is a shining yellowish-white from local restriction of the circulation. But a limited area may alone be involved, as in the case seen by Hinsdale in which the brunt of the swelling was borne by the uvula, which was enlarged, edematous and allowed with difficulty the entrance of air to the larynx; or the tongue may be affected, as in cases reported by Hutchinson and Hamilton, the swelling being so great in the latter's case that incision had to be resorted to. The wheals are usually round or ovoid in appearance but they may coalesce in the limited space of the air tract and form erythematous swellings of considerable areas of the mucosa. Again they may appear as irregular patches, and the size and form will vary greatly as successive crops develop.

In the chronic form, as in the case recorded by Goodale and Hewes of a man with urticaria of the tongue, the symptoms are not so violent as in the acute variety, although the mucous area may feel sore and urticarial patches may be present to a greater or less degree for months or even years.

The development of wheals upon the mucosa, preceding any dermal manifestations may, especially if intralaryngeal in origin, lead to serious errors in diagnosis; and it is not at all improbable that cases of mild urticaria of the mucous membrane of this region are not diagnosed as such, but are treated on essentially different lines from those which would be adopted if the nature of the affection had been recognized.

The duration of the eruption upon the mucosa, like that upon the skin, is commonly but a few hours in the acute cases, although some of the symptoms may last for several days, and evidences of the wheals, especially upon the lingual surface, may be seen for nearly a week after all respiratory distress has disappeared. In the cases in which the eruption appears first on the mucosa, it may be an hour or more before the dermal signs become prominent, but as they appear the primary lesions recede, as a rule, and under appropriate treatment it becomes only a question of a few hours before the alarming aspects have entirely subsided. Remissions may however take place, but they are chiefly confined to the dermal wheals and not to the mucosa, although the pruritus attendant upon the eruption on the mucosa may from time to time become augmented, with slight increase in the number of the wheals. When the urticaria appears upon the dermal surfaces primarily, the mucosa is usually not involved until a number of hours have elapsed from the full development of the dermal wheals, and when developed is apt to remain somewhat longer than when it occurs primarily in the larynx or pharynx. The subsequent course, however, does not differ in any essential respects from the primary mucous membrane cases. Thus, in Gibb's patient on the evening of the second day the eruption diminished, but hoarseness and dysphagia came on with increased intensity, while on the following day the patient was well. Fortunately, the predilection of the disease is toward the skin, and in practically all the acute cases the wheals appear upon this part more or less rapidly, to the great relief of the local lesions.

No difficulty should be experienced in recognizing urticaria of the upper respiratory tract when the lesions are also present upon the cutaneous surface, and it is only the cases in which the eruption is limited to the mucosa that will present any difficulty. The local appearance of the wheals differing from other forms of eruption seen upon the mucosa, the apparently inflamed condition of the parts, with separate areas of local ischemia situated at the summit of the reddened patches, and the migratory property of the wheals, with their fugacious character, will all aid in the recognition of the individual case. Occasionally it will take the form of acute edema of the mucosa, or it may be practically limited to the epi-

glottis, when its recognition will become almost impossible, but in all cases the symptoms are more or less distinctive, as they occur suddenly, are evanescent and produce pruritus akin to that of the dermal lesions.

The history of previous attacks of urticaria, even if they have not involved the mucosa, is an important aid in diagnosis and in practically all cases before the disturbance of the mucosa has entirely subsided, the appearance of isolated or multiple wheals on the skin will clearly indicate the nature of the affection. The presence of an unrecognizable cough, or periods of minor obstruction to breathing associated with irregular attacks of cutaneous urticaria, should at least lead to the suspicion of some relation existing between the two phenomena, and the placing of the patient under an appropriate treatment based upon such an association may be the means of elucidating some of these obscure cases which are usually unrecognized.

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MEDICAL PROGRESS.

PATHOLOGY AND BACTERIOLOGY.

Relation of Angiomata to Carcinoma.—Stimulated by the recent article of Leser on the frequent coexistence of multiple skin angiomata and carcinoma and the help in diagnosis which the former offer, D. Gerle (Münch. med. Woch., Jan. 28, 1902) examined 21 cases of undoubted carcinoma and 200 of a number of other diseases. Of the former, only a little over half presented the angiomata; in the latter they occurred in 43 per cent. According to these observations, they lack all value for purposes of diagnosis and simply show a retrogressive change in the tissues, which naturally is most marked in advanced age, when malignant tumors also are more prevalent.

Differential Staining of Blood Films and Malarial Parasites.—Among the new blood stains which are rapidly being devised that recommended by J. H. Wright (Jour. Med. Research, Jan., 1902) deserves especial mention. The author claims that it not only gives a differential staining for the chromatin and cytoplasm of malarial parasites, but as a general staining method for blood is superior to Jenner's in that it sharply differentiates the neuclei and cytoplasm of the lymphocytes and large mononuclear leucocytes as well as the granulations of the leucocytes in general. For the preparation of the staining fluid one per cent. of methylene blue (Grübler) is added to a one-half-per-cent. aqueous solution of sodium bicarbonate in which the bicarbonate is thoroughly dissolved. This mixture is then steamed in an Arnold steam sterilizer for one hour, counting from the time after "steam is up." When cold the mixture is poured into a large dish or flask and a sufficient quantity of a 1-1000 aqueous solution of eosin added until the blue color is lost and a purple color appears with a scum of a yellowish metallic luster on the surface. During the addition of the eosin the mixture should be constantly stirred or shaken. When the addition of the eosin is complete a finely-granular black precipitate appears in suspension in the mixture. This is removed by filtration without washing and when thoroughly dry is added to pure methylic alcohol to saturation. This saturated solution is filtered and to the filtrate is added 25 per cent. of methylic alcohol. This dilute alcoholic solution is the staining fluid. The technic for using the stain is as follows: (1) Make films of the blood, spread thinly and allow them to dry in the air. (2) Cover this preparation with the staining fluid for one minute. (3) Add water, drop by drop, until the mixture becomes semitranslucent and a yellowish scum forms on the surface. Allow this mixture to remain on the preparation for two or three minutes. (4) Wash in water until the film has a yellowish or pinkish tint in its thinner or better spread portions. (5) Dry between filter paper and mount in balsam.

Branching in Bacteria with Special Reference to B. Diphtheriæ.—In recent years much attention has been given by investigators to the branching forms of various bacilli so frequently observed. The subject is of great importance from the viewpoint of the classification of such micro-organisms. As the result of detailed study H. W. Hill (Jour. Med. Research, Jan., 1902) shows that passive degenerative changes in dead or dying bacilli may give rise to slight irregular projections which distinctly simulate branches. As a part of the active development of the diphtheria bacillus, active branching by apparent budding, ending in the production of an oval or elliptical body, probably capable itself of further development and the production of new rods, may occur in very young cultures, the parent stem then degenerating. As a part of the active development of the diphtheria bacillus, branching similar to that described, but terminating in an ordinary diphtheria rod-like body and without any degeneration of the parent stem at the point of origin, may occur within twenty-four hours of inoculation; and this new rod may segment in the ordinary way or itself produce branches, terminating in rods similar to itself or in oval bodies such as described. Various modifications of all the processes of branching probably exist. The origin of the active multiplicative branching may be reversionary or evolutionary or merely due to special conditions of growth not understood at present. According to the latter view, the active forces usually resulting in fission may at times undergo a lessening of tension or some other modification which results in a change

in direction of their activities. Whether such a change is retrogressive or progressive has not as yet been determined.

Dermoid Cysts and Teratomata of the Anterior Mediastinum.—The general subject of dermoid cysts and teratomata is one of much interest. While they are comparativly common in certain locations, as the ovary, their great infrequency in the anterior mediastinum has led H. A. CHRISTIAN (Jour. Med. Research, Jan., 1902) to report a case which recently came under his observation. The patient, a female thirty-eight years of age, had complained of indefinite pulmonary symptoms for six years. For two years previous she had coughed up hairs at intervals. During the last few weeks there had been several attacks of hemoptysis. On physical examination there was dulness in the right chest which diminished in extent after attacks of coughing during which much material was brought up. A few hours before death there was a gush of blood and pus from the mouth and with this material a few hairs were mixed. At autopsy a tumor as large as a cocoanut presented itself in the lower portion of the anterior mediastinum. It extended from the diaphragm nearly to the bifurcation of the trachea and was attached to the inner surface of the right lung from its base to a point 6.5 cm. below its apex. When opened the tumor presented a cavity containing about 200 c.c of whitish-yellow, semi-solid material, full of long, delicate, curly, blond hairs. Over the anterior part of the wall of the tumor and pleura there was in places a layer of fat and fibrous tissue 5 to 6 mm. thick. In the right half of the tumor there were small, scattered, bony plates adherent to the wall. The entire inner surface of the tumor was trabeculated. Microscopical examination showed the characteristic appearance of teratomatous growths. After reviewing the literature of the hitherto reported cases the author concludes that teratomata in the anterior mediastinum generally give evidence of their presence during early adult life and are of relatively long duration. Their most frequent position is immediately behind the upper portion of the sternum. They may be classified as follows: (1) Tumors of ectodermal origin with the addition of some tissue from the mesoderm—dermoid cysts. (2) Tumors derived from all three germ layers—teratomata. (3) Dermoid cysts or teratomata which in some part of their structure show evident malignancy. The coughing up of hair is pathognomonic of this mediastinal condition. Cure is possible only through surgical procedure. The genesis of these tumors is to be referred to the fetal period of life.

SURGERY.

Quinine in the Treatment of Wounds.—It may seem unnecessary to offer a new means for treating wounds, but in this capacity quinine has lately come to the front. J. HEVESI (C'blatt. f. Chir., 1902, No. 1) has been working along these lines lately, and offers a new form of quinine which is called lygosinate, which has been prepared synthetically from salicylaldehyde by Prof. Fabinyi. One of the same group of salts, namely, the lygosinate of soda was presented in 1898 to the International Congress for Hygiene at Madrid, by Prof. Marschalko, who claimed great efficiency for it in soft chancre and in gonorrhea in women. For surgical purposes the drug recommended itself on account of its insolubility, and less so for its rather strong decolorizing influence. Later Fabinyi produced a scarcely soluble preparation, using quinine and thus producing diorthokumarketon. The finely-divided orange-colored powder is scarcely soluble in water, but readily so in alcohol, benzine, and chloroform. It contains 70.8 per cent. quinine. In boiling oil it passes into solution, five parts in one hundred. It has a bitter taste, and an almost imperceptible, slightly aromatic odor. In the hands of this author the bacteriological experiments proved that the drug has a very remarkable power to destroy micro-organisms. No cases of poisoning from the drug among animals were seen. The drug was used as a powder for dusting on wound-surfaces, for impregnating gauze, and other dressings, for suspension in glycerin, and finally for combination with the gum on adhesive plaster. A thin layer of the powder dusted on was used in many cases of unclean wounds in patients who were walking about, in foul, gangrenous conditions, and the like. In all these it acted as a deodorant and an antiseptic, so that the poisonous secretion soon became harmless, odorless and only slightly purulent. Meanwhile the whole wound became a lively, healthy area of granulations. Ulcerating cancer also was deodorized and dried by means of the powder. In cases of bone disease a ten-per-cent. suspension of the drug in glycerin was injected into the wounds or the powder itself was rubbed in. Here also similarly successful results were obtained. Sinuses and fistulæ yielded to it. Similar other well-known chronic surgical conditions are benefited. Bleeding, especially oozing from the parenchyma of organs, is easily checked with the aid of this preparation. Most important of all is the fact that it is not poisonous because so little of it is absorbed.

Nephrectomy.—In the diagnosis of various kidney lesions necessitating excision of the organ, several important methods of examination and investigation have been instituted. L. J. LABINSKI (Med. Rec., Feb. 8, 1902) in presenting cases of calculus and pyonephrosis, tuberculosis, new growth and suppuration, points out some of the valuable methods employed in diagnosis. Catheterization of the ureters gives much information of a definite character at times, but it is very difficult in the male and there is danger of carrying infection up the ureter. The cystoscopes of Nitze and Kelly and the segregator of Harris assist much in determining the character of the urine from the two ureters. The X-ray may be used with success in renal calculus, but is not always reliable. The freezing-point test of the urine (cryoscopy) is a test of the function rather than of the structure of the organ, and when a part of the kidney has been destroyed or removed it lends no information concerning the condition of the remainder. A thorough examination of the urine is, however, necessary in order to arrive at a satisfactory diagnosis of the nature of the malady. In calculus the urine is invariably acid, there are microscopical or macroscopical traces of blood and an excess of crystals of the salts composing the calculus. If there is an accompanying pyonephrosis the urine is the same in character as in suppuration. In tuberculosis there may be no change in the urine in the early stages; in the advanced cases varying amounts of pus and blood may be found. At first the urine is acid, but it may become alkaline afterward. The amount of urine is increased early, but the urea is much diminished. Tubercle bacilli are sometimes difficult to find. There are very few changes indicative of new growth. Small amounts of blood may be found in the urine and when the pelvis of the kidney is involved elements of the growth may appear. In suppuration, when the process is in the kidney substance, the urine is acid and purulent and frequently contains blood; when the pelvis is involved the urine is acid at first, but later it becomes neutral or alkaline, especially so if the mucosa of the

bladder become affected. The principal symptoms common to these kidney lesions are: (1) pain, (2) hematuria and pyuria, (3) tumor, (4) frequent and painful urination, (5) polyuria or anuria, (6) febrile condition. The differential points are as follows: In calculus, besides the renal colic, there is pain, due to the presence of the stone, which radiates into the pelvis, paroxysmal in character and increased on exercise. In tuberculosis the pain is usually slight. In new growth, it is generally severe, radiating in all directions. In suppuration it is variable. In calculus, there is very little hematuria, except during the passage of a stone, when there may be considerable. In the other diseases, blood is occasionally present. Frequent and painful urination is always present in tuberculosis (in fact, may be the first symptom) and occasionally appears in calculus and suppuration. Polyuria is especially noted in tuberculosis. Anuria is due to obstruction of the ureter. In calculous pyelonephritis there is a slight elevation of temperature, in tuberculosis a characteristic evening rise and in suppuration a continuous or intermittent high temperature.

Spinal Anesthesia with Tropacocaine.—Another addition to the already rich literature of spinal anesthesia is the article by K. SCHWARZ (Münch. med. Woch., Jan. 28, 1902), who has tried cocaine, eucain B. and tropacocaine extensively and expresses his preference for the latter, which he has used in over a hundred cases. His technic does not differ from that usually described. For operations on the rectum and lower down, 5 centigrams were injected; for higher regions, 6 centigrams were sufficient. In contrasting the effects and after-effects of tropacocaine injections with those of cocaine injections, the author finds (1) that during the operation nothing more than a slight pallor or cyanosis appears; vomiting is exceptional and occasionally there is some slowing of the pulse and involuntary discharge of urine and feces; (2) vomiting after the operation is also unusual; (3) headache, the most prominent symptom after cocaine, was present in but 11 per cent. of the cases, but was not nearly so severe in intensity; in a few it came on only during the third or fourth day and lasted two days; (4) rise of temperature with chills is always absent; the highest temperature recorded was 38.2° C. (100.7° F).

Effects of the X-ray.—The ordinary burn from the employment of the X-ray can at present be largely obviated by a better knowledge of the method. There is a certain condition, however, which differs from the so-called burns, and in which the skin of the exposed part becomes red, thickened, and as hard as in scleroderma, and is accompanied by excruciating boring pains. J. C. JOHNSTON (Phil. Med. Jour., Feb. 1, 1902) believes that this condition should be classed with the other precancerous keratoses, a preliminary stage of the squamous-celled type of epithelioma, in which the only change is a thickening of all the layers of the surface epithelium, or, in other words, in which cornification is the principal clinical feature. He reports two cases, one, the most marked, in a surgeon who employed the X-ray extensively. When first seen the skin of the hands was dry and scaly, the cuticle thin and atrophic, and on the dorsum were a number of hard, cornified growths, translucent and pearly. Examination of certain ones, after excision, showed marked malignancy with tendency to deeper invasion. The patient stopped his work and rest was enjoined. To prevent irritation of the skin a mixture of equal parts of hydrogen peroxide and glycerin gave the best results. After some months a recurrence was noted at the edge of the scar, which was excised down to the tendon and the wound grafted. This, however, showed no malignant traits, although the remaining cornifications are probably potentially malignant. Early and complete removal is therefore recommended.

Stammering Bladder and Urethra.—Sir James Paget was the first observer to call attention to and to name this interesting and relatively frequent condition. His clinical picture is extremely graphic. "The patient can often pass his urine without trouble, especially at customary times and places, and when he does so the stream is full and strong and he has nothing the matter with him. But he is in trouble if anyone is looking at him or if he is hurried, as at a railway station. He cannot pass a drop of urine, or, after a few drops there comes a painful check and the more he strains the less he passes; and then complete retention may ensue and overfilling of the bladder. Nearly all these cases find a parallel in the phenomena of stammering speech. In both alike there is usually a history of the difficulty having been felt in early life; in both alike are observed the strong influences of habit and association of ideas, the effect of transient changes in the nervous system, and the influence of distraction of mind. Equally in both classes of patients may be noticed the coincident general sensitiveness of the nervous system and the family relationship with persons who suffer from various other forms of nervous disorder." E. H. FENWICK (Brit. Med. Jour., Feb. 1, 1902) in an interesting review of this urinary trouble states that recent writers have tended to obscure rather than to clear views which were given us by Paget. He urges the necessity for holding in mind a classification based on the belief that there are two great etiological factors, widely separated, but productive of very similar symptoms, a neurosis which gives true urinary stammering and a stricture which produces false stammering. Fenwick, in considering the pathology and treatment of the first form, states that Paget's view that it never leads to any functional disorders is incorrect; he has seen cystopyelitis and other conditions develop from the severer forms. It is the compressor urethræ rather than the sphincter vesicæ which obstructs the free flow of urine. This can be proven very simply by passing into the membranous urethra a terminal-eyed catheter through which the patient can urinate freely. If the bladder has not become atonied by neglect, free and healthy urination can be permanently secured by tenotomizing the compressor urethræ without opening the urethral tube. This simple operation is done by cutting the membranous region through to the urethra upon the usual grooved guide. That spasm of this muscle rather than of the sphincter is what causes the trouble is further shown by the immediate relief afforded in cutting it and subsequently by the singular "pull" upon the perineal scar just before urination as though the muscle were still endeavoring to close the membranous urethral tube.

Incising, Searching and Suturing the Kidney.—In searching for renal stones, albeit they may previously have been demonstrated and very exactly localized by the X-ray, a very considerable choice exists as to the precise line of incision. H. A. KELLY (Brit. Med. Jour., Feb. 1, 1902) in an address before the New York State Medical Society says that this question as to the best position for incision is at present of maximum importance in the treatment of renal calculi. The whole problem hinges on the character of the renal vascularization. Mr. Broedel of Johns Hopkins has, under Kelly's advice, made a very valuable series of observations on this point. His conclusions are that the kidney is typically supplied by two arterial systems which are completely separated by the renal pelvis. "There is a major system carrying three-fourths of the arterial blood, providing for the anterior and a part of the posterior half of the kidney; and a minor system carrying

one-fourth of the arterial blood, providing for the remainder of the posterior portion. * * * The nearer the surgeon makes his incision in the line which divides these completely separated systems, the less blood is lost. If, however, he strike the major vessels of either of these systems the hemorrhage may be frightful, even great enough to cost the patient's life." It will be seen that there exists in the normal kidney a zone of tissue which is relatively poor in blood. There are certain anatomical landmarks on the surface of the kidney which are easy to find and sufficiently reliable for practical purposes. However, as there is in the undistended kidney rarely a space of more than a few millimeters between the anterior and posterior vascular planes, it is necessary prior to operating to pass a ureteral catheter and distend the kidney with water. This procedure was suggested by Mr. Broedel. Immediately on dilatation the vascular zones separate as much as two centimeters or more, and, if the kidney is cut into while distended, there is less injury to the cortex and the operator is at once made aware of the opening into the pelvis by the sudden gush of water. A third use of the catheter is, of course, that prior to operation one can by irrigation render the kidney relatively clean. The kidney surface is made up of irregular lobules the size of the end of one's thumb. These are bounded by whitish lines which represent the columns of Bertini which extend up between the pyramids. On the anterior surface these white lines coalesce in a longitudinal line, which Kelly proposes to call Broedel's white line. In order to make the incision correctly, one must cut parallel to Broedel's line, leaving about three-fifths of the kidney anterior and two-fifths posterior to the incision. The cut must be extended in a parallel direction to the posterior surface and not angling toward the center of the kidney as one would naturally incline to do. Through such an incision, which is relatively bloodless, both anterior and posterior systems of calyces can be explored. In about two-thirds of all kidneys, owing to irregularities of fetal development, the circulatory distribution is abnormal. In these cases it is usually possible to recognize the anomaly by finding Broedel's longitudinal white line, not on the anterior surface but back, as well as by noting the arrangement of the arterial trunks at the hilum. The kidney may be closed by three rows of sutures, one of fine gut to approximate the pelvis; one series of mattress sutures carried through the entire parenchyma; one, for accuracy only and not absolutely necessary, to closely approximate the capsule.

THERAPEUTICS.

Treatment of Gout.—As the etiology of this disease is still very obscure, it is impossible to place the treatment upon a scientific basis which will fit all cases. Experience, however, has taught that certain methods are invaluable no matter what the cause. M. Heinsheimer (Med. Times, Feb., 1902) believes that the most rational and most efficient treatment is the regulation of the diet. Elimination of nitrogenous and albuminous principles which result in the formation of urea or uric acid is especially important. This excludes "butcher's meat," also eggs and cheese. Milk, butter, fresh, vegetables and fruits are allowed. Oysters and lobsters can be partaken of moderately and poultry occasionally. Rice, potatoes and sugars are often interdicted by authorities, but may be allowed in reasonable amount. The wines which cause the most trouble are those which contain a considerable quantity of both alcohol and sugar, such as port, sherry and Madeira. Sweet champagnes also quickly produce gout. Whisky seems to have little effect upon the disease. Stout, porter and strong ales are a factor in producing the disease and even beer may have an influence. The drugs which are used in treating the disease strive to eliminate the poison by the kidneys or bowel. For this purpose the various alkaline waters are employed. Colchicum, the classical remedy, is efficient through its action upon the liver. The following combinations of the drug are very good:

℞ Pillulæ hydrargyri,
Ext. rhei,
Ext. colocynth. comp. ..... aa. gr. x.
Ext. colchici acetici ..... gr. xv.
M. Make into 15 pills. Sig. One every three hours till relieved.

℞ Liquor potassæ ..... ʒss
Ext. taraxaci ..... ʒi
Tinct. colchici ..... ♏x
Syrupi ..... ʒi
Aquæ pimentæ ad ..... ƒx
Sig. One dose.

After the bowels have moved thoroughly, give this mixture:

℞ Sod. salicylatis ..... ʒiv
Sod. nitratis ..... gr. cl
Pot. iodidi ..... gr. cxx
Vin. colchici rad. ..... ♏xc
Syr. gaultheriæ ..... ʒv
Sig. One tablespoonful in half glass of water twice daily for a month.

Treatment of Simple Chronic Bronchitis in Infants.—The treatment of this condition must be local and general. Local treatment, writes J. L. Daguzan (Gaz. hebd. de Méd. et de Chir., Jan. 26, 1902), varies according to the severity of the disease. If the secretion is abundant and obstructs the bronchi, an emetic is indicated; ipecac renders excellent service for this purpose. In subacute cases revulsives are in order; dry cups, tincture of iodine or mustard poultices may be utilized. Vesicatories are on no account to be used. If gastro-intestinal disturbance be present, jalap or scammony in small doses may be given with ipecac. To drain the secretion, balsams are useful—tolu, turpentine or benzoin. The constitutional treatment is of extreme importance. If lymphatism be present, cod-liver oil must be tried; if it be not well borne, prescribe syrup of the iodide of iron or some similar preparation. To rachitics give oil of phosphorus or calcium lactophosphate. Iron preparations are indicated for debilitated children. While tonics are not to be neglected, preparations which are based on alcohol are not recommended. Hygienic treatment should really be considered first. Without a well-chosen diet, substantial and easily assimilated, nothing can be permanently accomplished. During an exacerbation the patient must be ordered to bed. In the intervals sojourn in the country is to be urged. Moderate exercise and massage will augment general nutrition.

ANATOMY AND PHYSIOLOGY.

A New Nutrient Preparation.—As Nature already furnishes the carbohydrates and fats in a concentrated form, the desire for albuminoid foods has resulted in the production of numerous preparations. As a substitute for these a preparation of gelatin is put forward by H. Braf (Deut. med. Woch., Jan. 9, 1902) which he calls "gluton." It is obtained by allowing an acid (HCl) to act on gelatin for several hours at a fairly high temperature, and then neutralizing the same. The filtered product is then steamed, dried, and ground into a fine powder. It is tasteless and readily soluble in cold water. After clinical trials, it is claimed that it is more completely used up than other nutrient prod-

acts, that it has a higher nitrogen content, is readily digested even in large and continued doses, and can be administered to patients with high temperatures or to those to whom can be given only a liquid diet.

EYE, EAR, NOSE, AND THROAT.

Prognosis in Operations for Glaucoma.—An analysis of 258 cases of glaucoma treated by operation in Hirschberg's clinic is presented by F. MENDEL (Berl. klin. Woch., Jan. 27, 1902). In both acute and chronic inflammatory glaucoma the best results were achieved by iridectomy, successes being recorded in 82 and 77 per cent. of the cases respectively. This operation preserved what remained of sight at the time of operation, and in some instances vision was distinctly improved. Of the total number of cases analyzed (258), 216 were subjected to iridectomy. Twelve cases were treated by sclerotomy, and in 31 instances enucleation was necessary on account of the acute persistent pain. The cases classified as successfully treated by iridectomy were nearly all kept under observation for one or two years following operation. In a few instances the patients were still under observation after three, four, five, six and seven years. While in simple glaucoma successful results were obtained in about the same proportion of cases as in the inflammatory varieties, namely, 75 per cent., only one-half of the cases of secondary glaucoma showed good operative results.

X-ray Diagnosis of Foreign Bodies in Eye.—From a study of 61 cases in which the Roentgen rays were employed, the following conclusions are drawn by W. M. SWEET (Phil. Med. Jour., Feb. 8, 1902). He finds that this method affords the most certain means of detecting and locating foreign bodies in the eye and that this position should always be determined before magnet extraction is attempted. Early extraction is preferable and when the track of the body is through the cornea and lens, its position in the vitreous will indicate whether less damage will be done by removing the metal through the open entrance wound or through a new opening in the sclera close to the indicated position of the body. He believes also that in future more extended use will be made of the large magnet to extract pieces of steel from the vitreous than of the smaller form. Iron or steel which has remained in the eyeball until a fibrocellular covering envelops it cannot be dislodged by the magnet and must be extracted by forceps; this also applies to particles of copper or glass. The employment of normal salt solution to replace any vitreous lost resulted in several instances in eyeballs of good cosmetic appearance.

Tympanic Vertigo due to Obstruction in Eustachian Tube.—Cases of temporary impairment of hearing, tinnitus and history of frequent colds in the head, should have a thorough functional examination, when the lower tone limit will be found to be raised and the upper normal. Reduction of intratympanic pressure permits undue compression through the ossicles of the membranous labyrinth and consequent vertigo. These cases BRANDEGEE (Archives of Otology, Vol. XXX., No. 3) relieves by use of the gold electrodes of Duel applied in a careful manner and followed by catheterization. He cites three cases which in this way were relieved completely of their vertigo.

Mydriatics in Refraction and in Asthenopia.—While mydriatics are not necessary in all cases they are in very many cases. What these cases are DR. RISLEY (Ophthalmic Record, Jan., 1902) determines as follows: The emmetropic eye, he found in examination of large numbers of school children, gave best vision. Variations from emmetropia gave not only asthenopia, but also varying degrees of fundus oculi changes, all the result of eye-strain. Knowing this he claims that the prescribing of correcting glasses "is not the function of the optician, and should not be lightly assumed by the ophthalmic surgeon." The problem of prescribing the proper correcting glasses is not simple, but complex, the complexity being due to the requirements for comfortable binocular vision, *viz.*, harmonious relation between accommodation and convergence, excessive accommodation being required in hypermetropia and excessive convergence in myopia. There is a physiological range in most of these cases within which either one of these can be used independently, *i. e.*, the accommodation being "relaxed in the interest of single vision, or convergence abandoned in the interest of a clear image at the macula. . . . The struggle to maintain binocular clear vision is the cause of the asthenopia and its associated pathological conditions." The author claims that a mydriatic is necessary in many of these cases to rest the function of the eye and restore a normal behavior of the fundus tissues before a healthy eye is obtained to judge of the exact quantity of the refractive correction needed. The fixed cramp of the converging muscles in hypermetropic cases gives false testimony even with the ophthalmometer unless the prolonged use of a cycloplegic has been tried in a large number of these cases. In myopia, also, the fundus changes can be relieved only by a cycloplegic, sufficient to justify the proper judgment of correction.

OBSTETRICS AND GYNECOLOGY.

Fever During the Puerperium.—Every case of fever during the puerperium should be regarded as septic, writes J. F. MORAN (Amer. Jour. Obstetrics, Feb., 1902), until this is positively excluded by a most careful and painstaking examination. Other conditions with fever which are sometimes overlooked are phthisis, malaria, typhoid, influenza, pneumonia, and the exanthemata. Any genital indication should be followed up by thorough bimanual and specular examination, and, if possible, by bacteriological and microscopical examination. One of the most common causes of fever is intestinal toxemia. Following labor there is a semiparesis of the bowel, favoring fermentation and decomposition therein, and the fever subsides after catharsis.

Cervical Metritis.—This is a very common condition and the forerunner, as a rule, of trouble higher up in the uterus. A. DOLERIS (La Gynéc., Dec. 15, 1901) concludes an article on this subject as follows: Caustics are efficacious in treating recent ectropions and endocervicitis of superficial character. The strong caustics are not preferable to a series of other topical applications, which are less energetic, more penetrating and very antiseptic, and which combined with glycerin act very rapidly and simply. Such are the essential oils, creosote, tincture of iodine, ichthyol, etc. In treating the scars due to ulceration or cervicitis, caustics of all kinds have only a temporary and doubtful action. Here the knife is very much better, because it removes the diseased tissues as widely and as deeply as is necessary.

Diabetes and Pregnancy.—Perhaps the most common, and at the same time the least disquieting, abnormality of the urine during gestation is glycosuria, or, rather, lactosuria, resulting from an absorption of milk-sugar from the functionating mammæ. On the other hand the coincidence of true diabetes and pregnancy is an event of extreme gravity, which demands immediate recognition and stringent treatment. The rarity of this latter condition, its importance from a diagnostic standpoint, and the difficulties in its treatment, all make the recent paper of DR. ERNST'S (Edin. Med. Jour., Feb., 1902) a contribution of great interest. Diabetes is commonest between the ages of

forty and sixty, a period of life which is well without the limits of the childbearing period; indeed, two-thirds of the cases do not begin until after the menopause. When the disease does occur in a woman of childbearing age, it usually suppresses menstruation and may even produce atrophy of the uterus. There is, however, a small percentage of these cases in which menstruation continues; such patients may become pregnant, and even repeatedly pregnant during the course of the disease. It is a well-known fact, however, that the severity of diabetes is very much greater in young subjects than in old, hence those diabetic women who are still capable of becoming pregnant usually exhibit a dangerous form of the disease. The pregnancy supervening upon this condition tends, as do all other forms of severe physical strain, to aggravate it and to hasten its progress. There is another possibility through which pregnancy and diabetes may become associated, namely, that a pregnant woman may become diabetic. In such cases the prognosis is much more favorable. The condition begins to improve within a few days or weeks after delivery, although the disease may recur in subsequent pregnancies. The diabetes may persist in mild form in the intervals between pregnancies and may disappear after the menopause, or it may become progressively worse and take on a grave aspect. The effects of the diabetes upon pregnancy and childbed are extremely deleterious. Intra-uterine death of the child, with its variable train of results, has occurred in about two-thirds of the cases. Hydramnios is a frequent complication. As regards the woman, the lying-in may proceed normally, whether the diabetes improve or not. On the other hand, death may supervene in the same manner as after operations or injuries in such cases, with the symptoms of coma and collapse. The obstetrical management of diabetes with pregnancy is evidently a very difficult problem. The author believes that the termination of the pregnancy, and that, too, at the earliest possible date, is the only course which can logically be followed. In the first place, the chances are two to one that the child will die *in utero*, hence its life is not of great account. But it is unwise passively to await this event, since the prolongation of the pregnancy materially weakens the chances of the mother. The liability to death from collapse after delivery is in direct ratio to the age of the fetus. For these reasons, the procedure advocated by the author seems wise and conservative.

Tubal Pregnancy.—In the eleventh century Albucasis described the first known case of extra-uterine pregnancy. In 1875 Dr. Thomas was the first to operate for the relief of the hemorrhage attending the rupture of a tubal sac by boldly thrusting a galvano-cautery through the vaginal wall, removing the fetus and thoroughly cleansing the cavity with a carbolic-acid solution. Dr. Tait instituted as a routine practice the treatment of this condition surgically. T. GOODNUGH (St. Paul Med. Jour., Feb., 1902) points out that nearly all pregnancies are probably extra-uterine in the beginning. Both the cilia in the Fallopian tube and the uterine cavity move toward the cervix and the spermatozoa work their way upward against this current. Spermatozoa are frequently found free in the peritoneal cavity. The cilia extend a short distance beyond the tubal opening and sweep the ovum into the tube as soon as it escapes from the follicle. The tube, however, is long and covered by delicate plications and deviations, so that the progress of the ovum is frequently impeded. Should any cause be sufficient to stop its progress, it may either die or become attached to the mucous membrane and develop. Factors in the causation of this condition, therefore, may be easily understood: (1) A congenital narrowing of the canal. (2) A large or unusually shaped ovum, hydramnios, twins, encephalocele, etc. All primary deformities in the ovum have been noted in ectopic gestation. (3) Disease of the Graafian follicle so altering the membrana granulosa as to make it more adhesive to the tube. (4) Excessive involution which has affected the tubes as well as the uterus. This is considered an etiological factor in isolated cases from the fact that the condition is much more rarely met with in multipara. (5) A tumor of the uterus or ovary distorting or closing the lumen of the tube. (7) Most authorities believe that inflammations of the appendages or pelvic structures are the casus belli in many cases, and the gonococcus is perhaps the most frequent invader. On the other hand, ectopic gestation seldom appears with double pus tubes, probably because the pus kills the spermatozoa. The treatment of these cases in their various phases is distinctly surgical. If surgical interference were withheld in all instances only five per cent. would recover, but in the hands of a skilled surgeon the mortality-rate is less than one per cent. The time for operation may be questioned. Shock from hemorrhage is seldom a contraindication. If the condition be recognized before rupture or if hemorrhage cease and a hemotocele form thorough preparations should be made for an aseptic operation. In the tubo-abdominal variety when the eighth month has passed, some advise the postponement of operation until pains begin. The author believes in such instances the mortality is least when celiotomy is deferred at least four or six weeks after false labor has taken place, thus allowing time for separation of the placenta, which can be more readily removed without alarming hemorrhage.

Faulty Uterine Growth.—The uterine ligaments play a considerable rôle in cases of faulty development of the uterus, according to D. H. CRAIG (Boston Med. & Surg. Jour., Feb. 13, 1902). The round ligament begins to be important in early fetal life. Its development proceeds *pari passu* with that of the uterus, tubes and ovaries. Any factor influencing the development of the uterus will influence also that of the round ligament. Experience has shown treatment of faulty prenatal uterine development to be futile. Cases of faulty growth (growth being defined as postnatal change) comprise two classes, as follows: (*a*) Inhibition or absence of growth; (*b*) tardy or delayed growth. In the former class the uterus maintains the infantile characteristics of long cervix, small body, anteflexion. In the latter a certain amount of growth has occurred, but at puberty growth has failed; the body of the uterus, however, is as long as or slightly longer than the cervix. In the case of infantile uterus prognosis is very doubtful; in the other class of cases treatment is of value, but must be continued for a period varying from nine months to two years or more. Treatment begun at fifteen to seventeen years of age promises better results than that which is begun after marriage—say at twenty-two years. An important factor in examination is the uterine probe. If the cervical canal in the least exceed that of the body a most unfavorable prognosis is the only one justifiable. Treatment must be general and local. Out-door life, gymnastics, Swedish movements, etc., are indicated. Iron seems to be valuable even when there is no anemia; presumably its action is due to its power to increase the blood supply to the pelvis. Active and not passive local congestion is required. The ordinary means of obtaining it are intracervical application of impure carbolic acid, negative galvanism, faradism, hot douches. In obstinate cases discission may be practised; it appears to induce growth, just as a laceration of the cer-

vix causes overgrowth. When growth begins in response to treatment, only to cease after a little while, the retrogression may be due to sagging of the uterus and resulting passive congestion. The indication is plainly to support the uterus from the start. For this purpose Craig recommends a small soft or hard rubber retroversion pessary; the smallest pessary that will do the work should be used.

THERAPEUTIC HINTS.

Pharyngitis and Acute Bronchitis.—In laryngitis and acute bronchitis, Liégeois prescribes the following:

℞ Sodii benzoat.....gm. 4.0 (ʒi)
Tinct. aconit.....c.c. 1.20 (ɱxx)
Aq. laurocerasi..... 4.0 (ʒi)
Syr. tolutani.
Syr. codeinæ.
Aquæ .....aa. 60.0 (ʒij)

M. Sig. To be taken in the twenty-four hours. For pharyngitis he gives large doses of sodium benzoate.

Infantile Syphilis.—Attempting to medicate the newly-born by mercurializing the mother, or goat or cow which is supplying milk to the infant, is useless, writes H. de Rothschild (Le Progrès Médical, Dec. 7, 1901). By the alimentary tract one may give Van Swieten's solution in milk in doses of 20 or 30 drops a day during the first month and 40 to 100 during the second, third and fourth months. The solution is as follows:

℞ Mercuric bichlor. corros..... 1.0
Alcohol 100.0
Aquæ 1000.0

Twenty drops would be equivalent to gm. 0.0025 (gr. 1/40) of the mercury salt. The protiodide, in doses of gm. 0.01 (gr. 1/6) a day, may be substituted for the bichloride. The cutaneous method, however, is the surest and most prompt. Five minutes' daily friction may be made with gm. 1.0-2.0 (gr. xv-xxx) of mercurial ointment, changing the site of application each day to avoid irritation of the skin. Have the part well washed with soap and hot water before the rubbing, and give the child a bath every second day. An excellent method of applying mercury is by the sublimate bath administered once or twice a day, each bath containing gm. 1.0-3.0 (gr. xv.-xlv.) of mercuric bichloride.

Vaginismus.—The general treatment consists of avoidance of intercourse, change of air, sea-bathing, exercise, and warm alkaline baths of soda and starch, using a bath speculum in the vagina. A stimulating diet should be avoided, and bromides with valerian or valerianates administered. The local treatment may consist, first, of warm vaginal washes of bichloride of mercury, 1 in 5,000, tincture of opium, 1 in 120, chloral, gm. 1.0 to 2.0 in 500 c.c. (gr. xv.-xxx in Oi), liquor plumbi subacetatis, 1 in 240, or tincture of calendula, 1 in 20; second, of suppositories of cocaine, gm. 0.12 (gr. ij), morphine, gm. 0.06 (gr. i), extract of belladonna, gm. 0.12 (gr. ij), extract of hyoscyamus, gm. 0.7 (gr. x.), or iodoform, gm. 0.35 (gr. v.); third, of lanolated creams of cocaine, 2 to 4 per cent., extract of belladonna, 2 per cent., morphine, 1 per cent., atropine, gm. 0.12 in 30.0 (gr. ij-ʒi), iodoform disguised with coumarin, vasol, iodine or ichthyol. The warm vaginal douche, with alkaline, sedative or astringent lotions added, may be used night and morning. Medicated glycerin tampons or a vaginal dilator may be worn at night. Direct application to the parts of lunar caustic, carbolic acid, solution of silver nitrate or cocaine may be made. If these means fail, operative dilatation must be resorted to.

Lumbar Puncture.—Of sixty lumbar punctures practised by A. Chipault (Le Médecine Moderne, Dec. 25, 1901) for therapeutic effect, fluid was not obtained in nine; of the others cure resulted in eleven cases, improvement in fourteen, and in the rest the results were negative. The cases cured were serous hypersecretion in congenital hydrocephalus, coma in an old syphilitic, grippe, meningitis, choreiform movements, specific meningomyelitis, septic meningitis, cranial traumatism and vertebral traumatism. The improved cases were two of hydrocephalus, two of infantile cerebellar tumors, pneumococcus meningitis, five of tuberculous meningitis, two of epilepsy, uremia with profound torpor, and rheumatism with rachialgia. In all these cases except the case of rheumatism, the improvement was only temporary. The cases with negative results were nine cases of hydrocephalus, four of tumors, three of tuberculous meningitis, one of cerebrospinal meningitis, three of epilepsy, four of general paralysis, blindness with papillary edema, and vertebral fracture.

Tuberculosis.—At a clinic given by Dr. J. E. Stubbert of the Loomis Sanitarium (Post Graduate, Nov., 1901), he advised special care of the alimentary canal and the blood. Chronic gastritis and dilatation of the stomach are very common, but one must not be misled by a temporary upsetting of the stomach from cough syrups, creosote, etc. The treatment is, first, lavage two or three times a week, and, second, the Einhorn electrode. The diet at first should be liquid or semisolid. Secondary anemia is the common blood condition and is most satisfactorily treated by arsenic and iron. Blaud's pills, chloride of iron, peptomangan, Fowler's solution, arsenauro and arseniated hemaboloids are of value. Static electricity is another good general tonic. For the cough do not give sweet vehicles and avoid morphine if possible. Two or three doses a day of codeine, gm. 0.015 (gr. ¼), or heroin, gm. 0.005 (gr. 1/12), will gradually bring the cough under control. Of inhalers the Underwood hot-air inspirator, used once or twice a day at 300° to 400° F., has its advantages. The following are good solutions to use with it:

℞ Ol. camphor.....gtt. clx
Terebene.
Eucalyptol .....aa. ad 30.0 (ʒi)
Dose: Two to ten drops.

℞ Creosoti .....8.0 in 30 c.c. (ʒij in ʒi)
Thymol .....0.25 in 30 c.c. (gr. iv. in ʒi)
Eucalyptol.
Ol. pini sylvestris.
Ol. gaultheriæ.
Ol. menth. pip.
Acidi benzoici.
Dose: Two to eight drops.

℞ Tinct. hyoscyami .....gtt. L in 30 c.c. (ʒi)
Tinct. iodi.
Ol. pini sylvestris.
Menthol.
Alcohol.
Eucalyptol.
Dose: Five to ten drops.

But the multinebulizer is much better for general use. Solutions adapted to it are:

℞ Menthol.
Camphor .....aa. gm. 1.0 (gr. xv.)
Albolene..... .....ad. 30.0 (ʒi)

℞ Creosote .....c.c. 4.0 (ʒi)
Albolene .....ad 30.0 (ʒi)

℞ Alcohol, 75 per cent.
Glycerin.

For two or three hours after the use of either of these inhalers the breath gives the odor of the drug used, showing that the bronchial mucous membrane must have been tolerably well saturated.

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SOME NEW PHYSIOLOGY.

NOT all of the revolutionary and far-reaching advances in biological science are heralded as such by their promoters, for some grow into their importance almost imperceptibly, yet very rapidly, the labor of so many different minds and hands that no one of them can say, "This new doctrine is my own." Of such nature is the development, still doubtless only beginning, of the theory of ionic dissociation and its new hypothesis of life, with all its varied promise to the physiologist, the therapeutist, the bacteriologist, the pathologist, and the surgeon. This new movement is one more example of how important truth, about to become clear, hovers, as it were, in the very atmosphere around the body of interested researchers, however widely scattered spatially, its component parts issuing one by one from the minds of many such, and then uniting quickly to form a vast new star to light a world of doubt.

One thoroughly familiar with the American, English, and German physiological literature of the last five years will recall articles reporting the demonstration of certain facts and principles apparently as unrelated as they are various. One of these proved that the hearts of animals high in the zoölogical scale, if properly cared for, will continue their normal rhythmic beating long after all the nerves connected with them have been severed; this was a surprising thing, for it demonstrated that, whatever nervous influences may do, they do not cause or even occasion muscular contraction. Another research proved that mammalian hearts, even when taken out and isolated completely, would beat for hours when provided with a proper nutrient solution irrigated through them, this nutrient solution being blood serum. Another showed the absolute necessity of certain inorganic salts in the nutrient solution for the normal acting of protoplasm, in particular of muscle and of nerve. The dependence of the mysterious process of blood coagulation on the salts of calcium became certain at about the same time. Meanwhile, another experimenter was making interesting studies on the nature of colloids, and had worked out to demonstration in what ways an electric current causes the gellation or coagulation of hydrosols into hydrogels—of which class protoplasm is a member—and physics had added one more and a large element to the understanding of what was once termed "vital force." Still another research discovered and demonstrated that the normal rhythmic movements of protoplasm under abnormal experimental conditions were possible only in electrolytes, that is, in solutions capable of conducting appreciably an electric current whether galvanic or static in nature. Now then, by this important observation there came into adaptation to physiology a doctrine well known for many years to the physicist and the chemist, namely, the theory of electrolytic dissociation and the underlying doctrine of the ions.

This, then, was the rational conclusion to this complicated but straightforward series of proven propositions: the movements in and of living protoplasm take place apparently by means of ions, the electricity-bearing portions into which molecules break down when in solution, and the energizing principle of living protoplasm at last appears in very truth to be electricity. This proposition every physiologist has long had in mind inevitably as he saw measured in his capillary electrometer the "action current" in the beating frog's heart and the electric current known as the "negative variation" which may be conducted away from the injured nerve or muscle or gland or eye of any recently-killed animal. It has, indeed, been for a century the natural presumption to all familiar with the phenomena of the nervous system, but authority had by its denial (as so often) made it doubtful as a scientific

proposition, concealing it beneath the generally-adopted thermodynamic hypothesis. Electrical phenomena in the lives of many sorts of animals and even of plants are so numerous and so well known that they need no suggestion here. At last, with the cellular methods of the twentieth-century biology, the electrical basis of protoplasmic energy bids fair to be established.

Supposing now, for the sake of explanatory argument, that the inherent energy of living tissues is indeed, for the present at least, really classifiable as electric, what then is this doctrine of ionic dissociation on which the supposition rests? What, too, is the probable practical outcome of the theory in the directions for which the medical profession in particular has its being, in the alleviation of animal disease and pain? What is all this to medicine as an art, inseparable always from medical science? Thus far in the development of this new knowledge the practical bearings seem to be in relation only with the ionic doctrine and not much with its important corollary that the motive power of life is essentially electrical. What then, very concisely, is the theory of ionic dissociation, biologically applied? It is all too new as yet for important practical results, and a widespread interest in and acquaintance with the theory must precede the more particular researches.

Atoms and molecules long since have become to the student of chemistry and of physics objects as real as chairs and mortgages—one believes in them because a multitude of various facts and theory all point conclusively to their existence, and quite refuse to be explained by any other supposition known. We believe in atoms and in molecules, in other words, because our reason bids us inevitably to do so. Just as universally, without a doubt, will the students and scientists of the next ten years believe in ions and in their laws, and will discuss them and experiment upon them as they do with bacteria or leucocytes. In the uttermost of its simplicity, then, the ionic doctrine may be given in syllabus as follows: The molecules of salts, acids, and bases when they are dissolved in a liquid break up into ions, this solution being then called an electrolyte, for it will conduct a current of electricity. The liquids which have not the property of dissociating molecules into ions cannot conduct an electric current, and liquids which have the property are non-conductors unless ions are present in them to serve as bearers of the electrons or electric changes (for example, 1 c.c. of the purest water ever prepared was found to have a resistance to a galvanic current equal to 25,000,000 miles of copper wire 1 mm. in diameter). According to Arrhenius, the conductability of an electrolyte is proportional, for a constant difference of potential, to (1) the number of ions, that is, to the number of dissociated units, in the solution; (2) to the relative electric charge of these ions, and (3) to the speed of the ions. The proportion of the dissolved molecules which break up or dissociate into ions depends, within limits, on the degree of the dilution of the solution; a certain definite dilution, however (distinct for each solvent and for each dissolved substance), dissociates completely all the molecules, and further dilution merely separates the ions further from each other. Water is the best dissociator of molecules into ions; formic acid appears to be the next best, dissociating three-fourths of the molecules dissolved; nitric acid comes next, perhaps, then methyl alcohol, dissociating one-half to two-thirds the molecules; ethyl alcohol is not so good a dissociator as methyl alcohol, while acetone, the ethereal salts, and the hydrocarbons come in order, the last having only feeble power in this direction. Organic compounds are much less dissociated than are inorganic salts, and the ions are more complex, and less understood at present. In the presence of static or galvanic electricity certain ions take on each a positive charge of electricity and are then termed cations while the other ions (of a molecule dissociating into only two ions) acquire negative charges or electrons and are termed anions. If the poles of a battery be introduced into an electrolyte, the cations or positive ions go to the cathode, which is the negative pole, and the anions or negative ions go to the pole which is positive and called the anode, according to the universal law of electrical attraction and repulsion. Ions may be single atoms or groups of atoms; cations are more apt to be single atoms than are anions. The cation of all acids is the hydrogen; the anion then varies with the acid (*e.g.*, NO_3, SO_4, CO_3). The anion of bases is the hydroxyl group (OH); the cation varies with the base. In the case of salts, both the anions and cations vary with the salt, depending on the acid and base which had combined to form the salt. All atoms have either the same capacity for electricity or a simple multiple of the capacity of univalent atoms, that is, a bivalent atom or ion will carry twice as much electricity as an univalent ion, a trivalent ion three times as much, etc., which is "Faraday's law." The capacity for thermal energy is the same for all atoms.) Ions actually move through

the electrolyte, and not merely transfer their electrons; with a moderate strength of current Kohlrausch calculated that the velocity of a hydrogen ion was 0.0032 c.m. per second, most other ions moving much more slowly. The amount of electricity necessary to charge a liter of an electrolyte containing dissolved as many grams of a univalent metal as there are units in its molecular weight ("its electrochemical equivalent") is for all substances studied 96,537 coulombs—a very considerable charge for every ion; yet a bivalent ion would carry twice as much, a trivalent ion three times as much, and so on up to the octavalent ion, which is the highest valence known. (From this it appears what a very large amount of energy certain ions may carry, and the answer to several problems is herein suggested. Whether or not an ion is a cation or an anion is a relative matter, for a cation may become an anion in a complex salt when some other element is present which is stronger electrically than itself. An ion having the same chemical composition may carry different electrons under different conditions, *e.g.*, of origin.

These concise statements bearing on the ionic theory (taken mostly from the books of Prof. H. C. Jones and from Hollard) are intended to convey the chief principles of the matter, which is obviously not at all difficult to understand. Works on the theory are now accessible to any student of medical science who would know more systematically as to the physical chemistry of this now important doctrine. Next, it will be interesting to review briefly some of the actual medical knowledge based on this theory and derived through its application to these doubtful problems of physiology and therapeutics.

In the first place, it must be obvious that protoplasm (constituting of course all the tissues of a living body) is an electrolyte of the most perfect sort, it being practically a watery solution of considerable dilution of various salts, acids, and probably bases. Sodium chloride is especially important among the salts dissolved in the protoplasm, its ions being the univalent positive sodium and the univalent negative chlorine. The bivalent negative group CO_3 is also conspicuous, while in the blood plasma the univalent cations sodium and potassium and the bivalent cations (positive) calcium and magnesium and the univalent anions chlorine, hydroxyl, and HCO_3, and the bivalent anions HPO_4 and SO_4 are especially abundant. Each of these, and numberless other sorts, of ions is capable of carrying a constant charge of electricity proportional in each case to its valency in chemical combination; each, too, is capable of instantly overcoming the electrical nature, positive or negative, of any ion with which it comes into relation. The nature, number, and location of these ions depend on chemical metabolism in the cell, which of course is in turn dependent on the composition of the blood, which is likewise subject to the conditions imposed by the quality, quantity, absorption, and digestion of the food of the animal. The metabolism in the cell, consequence of the ingested food, liberates energy certainly in the form known as heat, but quite as certainly, according to this theory, the motor energy of the body is that of the ions powerfully and changingly charged with electricity, and continually passing to and fro, loading and unloading their work—performing charges of electricity. As already hinted W. B. Hardy has shown that protoplasm may be considered a reversible hydrosol or colloid, consisting of particles in suspension in water containing many dissolved salts and probably acids and bases. These particles appear to be aggregations of from 1,000 to 10,000 molecules, each having around it probably a double layer of ions heavily charged with opposite electricities. The proteid molecule especially is very large and the particles correspondingly labile. It is the repulsion between the particles which perhaps prevents their precipitation. Here, then, is a condition of equilibrium easily disturbed, especially since the particles are made up of molecules so large and unstable as those of muscle and nerve and epithelium, and this disturbance means a powerful discharge of energy. Every "particle" of the hydrosol protoplasm is then practically, according to this hypothesis, a minute but relatively potent Leyden jar charged with static electricity and discharged by the accession of ions having a sign opposite to that of the internal of the two layers about the "particles;" this sign appears to be usually negative. This is the physics at the basis of many protoplasmic changes and effects according to this hypothesis, and so strong is the evidence that the probability of its truth is considerable.

One more precise development from this combination of new ideas on protoplasm and the ionic theory has been worked out and in outline set forth by Dr. Albert P. Mathews. Working with the methods of the pioneer Jacques Loeb, he has probably developed and announced the essentials of the nature of the nervous impulse, one of the most interesting puzzles in all physiology. This research has been printed only in abstract and in a brief article in the *Century* for March,

the latter of which we may summarize as follows: When an electrolyte stimulates a nerve, *e.g.*, the sciatic of a frog, placed in it, it does so by withdrawing part of the water in the neural protoplasm. In such electrolytes it is not the positive ions (cations) which stimulate, but the anions or negative ions—for instance, the chlorine ion dissociated from the sodium ion in the case of normal saline solutions. It appears however that it is not strictly the ions themselves which stimulate the nerve, but rather the electrons which the ions carry; it seems to be electrical energy and not merely chemical energy by which nervous tissue transmits its impulse, although, thinks the author, these two are probably identical in reality, all chemical affinity being probably a phase of electrical attraction. The positive ions or cations tend to destroy irritability, inhibit action, the effect being roughly proportional to their valence or the number of electrons which they bear. We may therefore counterbalance the inhibitory influence of the cations by supplying anions or negative ions of sufficient charge or power, and thus produce stimulation of the neural protoplasm. This stimulation of the nerve consists probably in the partial precipitation or gellation of the colloid, or reversible hydrosol, which all tissue is (as already noted). This progressive precipitation or clouding may in some organisms be seen with the eyes, and was actually observed and described many years ago by Darwin (that wonderful observer!) as the stimulating wave slowly passed through a tentacle of Drosera. The nervous impulse consists, then, in the passage of the colloids of the nerve toward or to gellation, a conclusion, as Mathews states, simultaneously reached in regard to muscle by Loeb. "The colloidal particles are positively charged. Those charges induce in the water about each particle negative charges, the number of negative charges being proportional to the surface of the particles. Now, when two adjacent particles are thrown together mechanically (mechanical stimulation) or by heat or in any other way, they coalesce, and the surface of the coalesced particles is smaller than the sum of the surfaces in the separate particles. There is a sudden diminution in the number of positive charges holding the negative charges. A certain number of the latter are at once set free. These immediately precipitate the next layer of colloids. By the coalescence of these particles, negative charges are again liberated and the nerve impulse is thus propagated. The speed of its propagation is probably connected with the minute diameter of the axis cylinder process, which makes the movement take place in one direction. If we prevent precipitation we can stop the nerve impulse and the negative variation also. Thus, anesthetics probably prevent conduction in nerves by dissolving to some degree the fatty substances conspicuous in nervous tissue, thus preventing the progressive gellation which conduction requires.

Dr. Jacques Loeb in his last published article (*American Journal of Physiology*, February, VI., 6, p. 411) similarly works out some of the applications of the new ideas to toxins and antitoxins. Already he had suggested and studied the probable cause of the action of muscle, as already noted. Starting with the now familiar notions concerning the probable structure of protoplasm, Loeb maintains with much good evidence behind him that toxic and antitoxic effects may be due to the various alterations in the viscosity of the protoplasm making up living tissue. He considers the process of cell division one of the phenomena of protoplasmic streaming, and it is obvious that oftentimes the action of toxins and antitoxins may be directly dependent on division of cells. Whatever, then, disturbs the streaming power of protoplasm will interfere with toxins and antitoxins, for to alter the normal viscosity of a colloid is of course to disturb this reproductive power. Supposing, for example, a toxin to be dependent for its effects in the body on the activity of a large number of monovalent anions, their evil influence would be easily controlled by the introduction of even a small number of bivalent cations, since bivalent anions have double the power that univalent ions have; and employing the ions of much higher valence (many of the most violent poisons are such) the effect would be still more practicable owing to the smaller amount of the substance required. Such results are already demonstrated for low organisms in the laboratory; it remains to apply the principle to the massed cells of more highly developed animals.

So as concerns antiseptics, enlightening conceptions, explanatory if not prophetic, are not lacking. The reason that salicylic and picric acids, *e.g.*, are so destructive to low forms of life is that they are easily dissociated in the tissue electrolytes and thus liberate a large proportion of hydrogen cations, which are preëminently poisonous, for reasons already suggested. Similarly for mercuric bichloride, the mercury cations are very poisonous, while the copper in its solutions is nearly as effective. Metallic salts in general disinfect, that is, kill, not only in proportion to

their concentration, but also according to the special properties of the salt and electrolyte concerned. The bactericidal power depends both on the metalic cation and the anion and on the proportion of undissociated molecules. When the salt is a complex one the metal may be then only a part of a compound ion and so it may act much differently from what it would alone. An example is the potassium of potassium ferricyanide. Ions of high valence are the most strongly disinfectant, bivalent less so, and univalent ions least, other qualities being similar; for example, fluorine, bromine, and chlorine are active in this respect in the order given, the order of their descending valences. The effects toward disinfection of salts with a univalent cation are due to the negative electrons of their anions. Loeb also demonstrated that for muscle the relative toxicity may be proportional to the migration-velocity of the ions.

Such are, in merest outline, the methods by which some of the results already attained by this new sort of knowledge have been secured. The future will reveal their value, whatever it be, to science and to mankind. The present line of research has evidently but just begun, and has apparently not yet reached what one may hope will prove the most practically useful field of all, the scientific preparation of drugs for the cure of human disease.

AN OPPORTUNITY.

IT is a surprising bit of information, but none the less true, that at the present moment there is not a single bed in any hospital in New York City so endowed as to be free for the occupation of a trained nurse. So many well-to-do patients have appreciated and not failed to expresss their sense of gratitude for unselfish nursely devotion in serious illness that it seems almost incredible that some of them should not have been prompted to make arrangements so that nurses themselves may have the opportunity to benefit by the best care when they fall ill. As a rule, of course, nurses locate in the place where they have had their hospital training. These have a recourse in illness, but at times they move to another city or a change in hospital management makes their former training-school practically a strange institution and then they may well feel the need of hospital care without being able to obtain it as they should. This situation presents an opportunity for practical charity of the most benevolent kind that should not be neglected.

Perhaps more than anything else the institution of the trained nurse has in recent years reduced the death-rate from disease and lessened the sum total of human suffering. Like the physician himself, she is the butt of many jokes when people are well, but a precious source of consolation and an assurance against worry when there is sickness in the household. Her greatest mission has been the prevention of secondary illness in families by lifting the load of responsibility for the care of the sick that used to weigh so heavily, especially upon female relatives. Surely others should be mindful of her and provide for at least the removal of the burden of personal responsibility when, in her turn, she falls ill.

THE ANESTHETIC FOR CHILDREN.

THE discussion on lymphatic enlargements in children and the problem of their removal under an anesthetic with the danger involved in the use of chloroform, especially in cases in which the lymphatic constitution exists, precipitated as an interesting side issue at the last meeting of the Section on Pediatrics of the New York Academy of Medicine the question as to what anesthetic it is safest to employ in children.

There is no doubt now that most of the deaths in chloroform narcosis, in children at least, occur in individuals who are the subject of the lymphatic diathesis. The records of the children's clinic at Gratz for the last twenty years show that in every case of fatality with chloroform as an anesthetic the autopsy revealed the presence of the lymphatic hyperplasia which is the principal feature of the so-called *constitutio lymphatica*.

Reports from many other clinics are of the same general tenor. So much so that, as Dr. James Ewing said, the question among pathologists now is not, Does the lymphatic constitution predispose to death under chloroform? but rather, Does death under chloroform, in children at least, ever occur apart from the lymphatic constitution? Dr. Ewing's personal experience and the reports sent him of autopsies for deaths under chloroform show that in America the conclusions from the Gratz observations hold good. It seems probable, however, that chloroform does not enjoy the unenviable distinction of being the only general anesthetic that is liable to cause death in these subjects. Dr. Lartigau's report of experiences at Roosevelt Hospital shows that autopsies on children affected by the lymphatic constitution came after ether anesthesia as well.

There is no doubt, then, that in every case in

which it is determined to use general anesthesia in children a careful examination should be made for any and all signs of the existence of the lymphatic diathesis. The symptoms are not difficult of recognition. The presence of universal enlargement of the lymph-nodes, without direct inflammatory cause; hypertrophied tonsils and adenoid hyperplasia, with the tendencies to anemia, weakness of pulse and fluttering heart that may accompany insufficient development of the heart and large blood-vessels, all are pathognomonic of the lymphatic constitution. It is not necessary for all of these symptoms to be present, but a combination of some of them with perhaps the physical signs of a persistent thymus and a history of delicacy of health are sufficient to arouse suspicion. Death from chloroform is too serious a danger to be risked if the case is clearly not in the category of those free from constitutional lymphatic tendencies.

It is in operations upon parts requiring deep anesthesia that the special dangers of the administration of anesthetics develop. It is in these cases that fatalities are apt to occur. It is clear, then, that it is at least tempting fate to use general anesthesia for operations upon the tonsils or upon adenoid hypertrophy.

It seems probable, however, as stated by Dr. Jacobi, that in general chloroform is the most favorable anesthetic for children. Chloroform, when fatal, produces death through the heart and the heart of the child has proportionately to the body weight much more force and is less susceptible to inhibitory influences than in the adult. Moreover, children's hearts are seldom crippled by valvular cardiac disease. Children's respiratory apparatus and kidneys are even more susceptible than are those of adults to the evil effects of ether. Unless some cardiac lesion exist to contraindicate it, or unless there be suspicion of the existence of the lymphatic constitution with its almost invariable accompaniment—an undersized heart and aorta, chloroform is then the anesthetic of choice. Much of the present objection to the use of chloroform due to the occasional deaths that occur from it will disappear if careful search for any signs of the *constitutio lymphatica* be made before the anesthetic is administered.

ECHOES AND NEWS.

NEW YORK.

Red Cross Hospital Work.—The State Board of Charities has granted permission to incorporate to the New York Red Cross Hospital, the Associated Charities of Syracuse and the Emergency Hospital of Buffalo. It is likely that the new Red Cross Hospital will be erected on the West Side, in the vicinity of One Hundredth Street.

Compulsory Vaccination Bill.—The Compulsory Vaccination bill, which passed the Senate with no opposition, and is now in the Assembly, encountered opposition Monday last at the hands of Dr. Lewis, State Health Commissioner, and Dr. A. G. Root, who represented the New York State Medical Society. They told the Governor that the bill was too far-reaching in its provisions.

Compulsory Vaccination.—Health Commissioner Ernst J. Lederle, E. Eliot Harris, M.D., and Daniel Lewis, State Commissioner of Health, will meet early this week to consider the Compulsory Vaccination bill which is now before the Legislature. It is understood that the bill is not favored by the Health Commissioners, on the ground that many persons who would otherwise be vaccinated would refuse if it were made compulsory. From 25,000 to 35,000 vaccinations are now performed free each week by the Health Department.

Private Smallpox Hospital.—The crying need for such an institution seems to be meeting with some recognition. It is known that last year Mr. Carnegie offered $500,000 to the Minturn Hospital for a private pavilion. It is to be regretted that the way was not clear at that time to accept this generous offer and the city of New York is the poorer for a lack of initiative on the part of the Board of Managers. The deficiency should be remedied and that quickly.

Smallpox Hospital for The Bronx.—As amended by the Committee on Cities, the bill introduced by Senator Hennessey authorizing the construction of a $500,000 hospital in The Bronx will provide that borough with a building for the reception of smallpox cases. The bill was reported favorably to the Senate on Wednesday last, with amendments suggested by Dr. Lederle, Commissioner of the Health Department. It authorizes the Commissioners of the Sinking Fund to acquire a site in The Bronx at a cost of not more than $200,000, and to construct hospital buildings which may cost $300,000 more, "for the purpose of providing suitable accommodation for a reception hospital for persons injured or taken ill suddenly in the Borough of the Bronx and for cases of infectious or contagious diseases." Another amendment places the control of the hospital in the hands of the Board of Trustees of Bellevue and Allied Hospitals.

New State Charities Bill.—The bill carrying into operation the recommendations of Gov. Odell for a change in the system of management of State reformatory, charitable, and eleemosynary institutions has been drawn by the special committee appointed at the conference of legislators held in the Executive Chamber two weeks ago, and has been sent to New York City for consideration by the State Board of Charities at its meeting, to be held in that city. The measure is different in many respects from the bills which heretofore have been outlined by those who have been following this proposed legislation. It does not abolish the State Board of Charities nor the boards of managers of the institutions. The power of these bodies, however, are modified, and the control and management of the institutions are practically reposed in a central bureau to be located in this city. The prominent features of the measure are:

First.—The Governor of the State shall appoint a Superintendent, under whose direct supervision the institutions will be managed, and who will receive a salary of $4,000 per year, with $1,500 for expenses.

Second.—The Superintendent is empowered to appoint a superintendent and steward of each institution and to exercise a general supervision over them.

Third.—The Superintendent of each institution is vested with power to appoint the subordinates of the institutions and is held responsible for the manner in which the institution is conducted.

Fourth.—The steward is made the purchasing agent of the institution he is connected with, subject to regulations to be prescribed by the State Board of Charities.

Fifth.—A State Improvement Commission composed of the State Controller and the President of the State Board of Charities is created. This commission is to have the power to ratify or reject plans for new buildings and for improvements to institutions, and no new buildings or improvements can be recommended to the Legislature for appropriations without the consent of the State commission.

Sixth.—The power of estimate for supplies is taken from the State Controller and reposed in the Superintendent of Institutions. He is charged to inaugurate a system of purchases in bulk, such as now is in operation in the State hospitals for the insane.

Seventh.—Local Boards of Managers retain the power of visitation and inspection of the institutions which they have heretofore managed. They are to be subject to the control of the State Board of Charities, and may be called upon at any time to investigate complaints and to make reports on the condition and needs of the institution.

Eighth.—The State Board of Charities retains the power of visitation and inspection which it now exercises, under the Constitution and the State Charities law, but the power of passing on plans for the improvements to and betterment of the institutions is taken from it and reposed in the State Improvement Commission, composed of the Governor, the Controller, and the President of the State Board of Charities.

Ninth.—While the power of passing upon estimates for supplies is taken from the State Controller, he still retains the power of auditing all bills for the expenditure of public moneys in behalf of the institutions. It is like the State Lunacy Bill, most obnoxious in its main features, and it can only be regretted that the Governor should be so set on the passage of such measures as to jeopardize seriously his reputation for integrity.

Charities Bill Not Approved.—The State Board of Charities held a special meeting at the United Charities Building last week and discussed the new Charities bill drafted by Gov. Odell. There was considerable opposition to some of the important details of the bill. The portion giving the general superintendent power to appoint officers of the institutions was freely criticized, and it is understood that the bill must be materially changed before the board will give its approval. The final decision of the board was embodied in a set of resolutions, which will be sent to the Governor on Monday. The board refused to make the resolutions public until after the Governor has seen them.

Protection Against Public Nuisances.—At the request of the Health Board the Police Department has detailed a force of plain-clothes men to travel on all surface lines, elevated roads, and ferries, on the lookout for persons who expectorate on the floor. By an arrangement with the City Magistrates all persons arrested are to be fined. Commissioner Lederle is determined to put a stop to the nuisance. The management of the Metropolitan Street Railroad informed Dr. Lederle that they would welcome all complaints against conductors who do not act on the suggestion of passengers, and caution offenders.

Protest Against Pure Food Bills.—The drug trade section of the New York Board of Trade and Transportation have forwarded a protest to the Senators at Albany against the Senate Bills Nos. 336 and 497, now pending, and known as the "Pure Food" Bills. The protest advocates the reference of the subject of pure food to a commission or to chemists identified with the department of the State. It is declared that to define adulterations requires the investigation of scientific men, and that hasty legislation would work injustice to consumer and producer alike. The comprehensive provisions of Senate Bill No. 336 would, in the judgment of the members of the drug trade section, open the way for endless litigation as a result of disagreements as to what constituted "harmful substances," and the discrimination against the two well-known preservative agents which are named in the bill is in itself without justification in the clinical experience with those chemicals, it is declared. Bill No. 497 is said to lack definiteness in its provisions as to what is injurious to health, and its enforcement would be based on opinions concerning which there is disagreement. The protest states that such legislation as the two bills represent is at variance with the laws of many other States, between which and New York State there is a liberal exchange of products. The protest is signed by John M. Peters, chairman of the committee on legislation; Jesse L. Hopkins, chairman of the drug trade section, and William F. McConnell.

New Ophthalmic Institute.—The New York Ophthalmic and Aural Institute, which now occupies the buildings 44 and 46 East Twelfth Street, will in the near future erect a handsome structure at the northwest corner of Central Park West and Sixty-fourth Street. Dr. Herman Knapp, who is the executive head of the institute, declined to say anything yesterday regarding plans for the improvement of the new site, and those members of the Trustees who could be reached, including Charles T. Barney, said that the plans were as yet in somewhat indefinite shape. The price paid for the plot has not been made public, but it may be assumed that it shows a substantial advance over $174,000, the figure at which the Century Realty Company acquired the property from the various owners a few months ago. The New York Ophthalmic and Aural Institute was organized in 1869. In connection with it there is maintained the School of Ophthalmology and Otology for the training of advanced medical students as eye and ear specialists. The institute's present quarters on Twelfth Street have long been inadequate, despite the fact that something over a year ago an adjoining house was deeded to it as a gift by Dr. Knapp and connected to the other buildings. Dr. Knapp will celebrate on March 17th his seventieth birthday, and in 1904 his fiftieth anniversary as a medical practitioner. He was professor of ophthalmology at Heidelberg from 1864 to 1868. Since 1868 he has practised his profession in this city.

Academy of Medicine.—The next regular meeting of the Section on Otology will be held Thursday, March 13th. Dr. Clarence John Blake of Boston will read a paper on "Tension Anomalies in the Sound Transmitting Apparatus of the Middle Ear."

The Section on Pediatrics will also meet Thursday, March 13th. Dr. T. Halsted Myers will read a paper on "Acute Joint Diseases of Infancy;" Dr. Henry Ling Taylor will present one on "Chronic Joint Diseases in Children."

The following have been recommended to resident fellowship: Drs. Charles Herman, John Leshure, Ernest Ellsworth Smith, Albert E. Sumner and James D. Voorhees. Dr. Willis Noble of Montclair was admitted to non-resident fellowship.

The following are some of the recent accessions to the Library: Allingham, W., & Allingham, H. W.,

Diseases of the Rectum; American Year-book of Medicine and Surgery, under the general editorial charge of G. M. Gould; Ball, J. B., Diseases of the Nose and Pharynx; Bruce, A., Ideal Health and How to Attain It; Crile, G. W., Problems Relating to Surgical Operations; Gerber, P. H., Atlas der Krankheiten der Nase; Hadley, W. J., Nursing: General, Medical and Surgical; Hanot, V., La Cirrhose hypertrophique avec Ictère chronique; Herter, C. A., Chemical Pathology; Horrocks, W. H., Bacteriological Examination of Water; Kocher, T., Hirnerschütterung, Hirndruck und chirurgische Eingriffe bei Hirnkrankheiten; Marshall, J. S., Operative Dentistry; Mercier, C. A., Psychology: Normal and Morbid; Munk, I., Physiologie; Reports of the Society for the Study of Disease in Children, Vol. I.; Roger, G. H., Les Maladies infectieuses; Schultze, F., Die Krankheiten der Hirnhäute und die Hydrocephalie; Simon, C. E., Clinical Diagnosis; Theobald, F. V., Culicidæ or Mosquitoes; mainly compiled from the collections received at the British Museum; Traité de Médecine, 2. éd. publiée sous la direction de MM. Bouchard et Brissaud; Transactions of the American Orthopedic Association; Transactions of the Colorado State Medical Society; Transactions of the Epidemiological Society of London; Transactions of the Ohio State Medical Society; Transactions of the Society of Anæsthetists, London; Weygandt, W., Psychiatrie; Wheeler, M., The Baby: His Care and Training; Whitla, W., Dictionary of Treatment; Williamson, R. T., Paralysis Agitans.

PHILADELPHIA.

To Appeal from Verdict of Court.—The Philadelphia County Medical Society at the meeting of February 26th appropriated the sum of $200 to aid in appealing the case of Dr. Righter, against whom a jury recently returned a verdict of $1,000 for alleged negligence in vaccination. Much indignation was manifested by members of the Society against the injustice of the verdict and individual members volunteered to subscribe enough to carry the case to the last resort if need be.

Symposium on Cholecystitis.—The meeting of the County Medical Society, February 26th, was devoted to a consideration of cholecystitis. Dr. Joseph McFarland spoke on the pathology, Dr. Joseph Sailer on the etiology and diagnosis, Dr. J. Chalmers Da Costa on the surgical diagnosis and treatment, and Dr. S. Solis Cohen on the medical treatment. Dr. Da Costa, in speaking of the cause of cholecystitis, stated that infecting organisms generally died before producing any effect on the gall-bladder when bile was running. Therefore infection and stagnation influence each other greatly as causative factors. The subjects of movable kidney and appendicitis were thoroughly considered under the question of diagnosis and the surgical treatment fully discussed, the policy of aggression being endorsed. Dr. Cohen stated that there was no specific treatment for cholecystitis, the general rule to be laid down being the securing of cleanliness, external and internal. This is brought about by diet, stimulants, hydrotherapy, etc. Sodium succinate in five-grain doses, four or five times daily, has given good results in some cases. In discussing the subject, Dr. J. C. Wilson said that cholecystitis presented one of three common conditions—catarrhal or purulent inflammation or contraction of the gall-bladder, with or without adhesions to the neighboring tissues. A point emphasized was that cholecystitis is rather frequent in the latter stages of typhoid fever. In a considerable proportion of such cases relapses occur, hence he has come to rather expect a relapse when cholecystitis develops. Dr. Wilson believes that surgical interference is advisable when from repeated attacks of colic, the presence of a tumor, etc., the diagnosis is reasonably sure. This is true whether the disease be accompanied by jaundice or not or whether gall-stones be present or absent. Early operation is comparatively easy and the danger of severe hemorrhage is much less.

Dr. Dawbarn Visits Philadelphia.—Dr. Robert H. M. Dawbarn of New York, whose essay recently won the Gross Prize in Surgery, visited this city during the past week. On the evening of February 25th, he addressed the students of Jefferson Medical College and later attended the annual banquet of the W. W. Keen Surgical Society. The following day he operated in Dr. Hearn's clinic at the Jefferson Hospital. Dr. Dawbarn spoke very briefly on the subject of excision of the carotids, giving a few of the details necessary for success in that method of treating certain malignant growths. Dr. Dawbarn is now making experimental injections into the internal maxillary and other small arteries, in conjunction with excision of the carotids, to prevent a return of the circulation.

Obituary.—Dr. Francis W. Lewis died March 2 of pneumonia, aged seventy-seven years. Dr. Lewis graduated from Jefferson College in 1846, served in a military hospital during the Civil War and was prominently connected with the Children's Hospital from the time it was founded.

New Dispensary to Be Opened.—An office under the management of Drs. Alice Norton, Gertrude Walker, and Kate Baldwin is to be opened in this city in the near future for the purpose of aiding a class of patients who cannot afford to pay the fees of regular physicians, but do not care to visit hospital clinics. The office is to be open during the evening and medical treatment will be given at very moderate prices. The project is supported by many physicians and also by the Pennsylvania Association of Women Workers.

Ferment-Chemistry of the Blood.—At the meeting of the Pathological Society February 27th Dr. Alfred C. Croftan spoke on "The Ferment-Chemistry of the Blood, with Particular Reference to General Metabolism." Dr. Croftan prefaced his remarks by stating that every physician must have asked himself why substances taken as food are oxidized in the body at its low temperature and not in the air. This is proven by the elimination of more oxygen than is inspired and is brought about by the various complex processes of the body included under the term metabolism. Metabolism is a process including two stages. The first stage is anaerobic and is carried on in the center of the cell by ferments secreted, not excreted, by the cell itself. The second stage is oxidative and is carried on at the periphery of the cell by ferments carried in the blood. An example of the action of these ferments is seen in the changing of albumose and peptones (formed from food) into serum albumin as soon as they have passed through the intestine in the soluble form into which they had been converted in the alimentary canal. By these ferments many complex substances, such as urea, may be formed without the presence of oxygen. Blood ferments are difficult of separation, being obtained only in extracts. Croftan believes that these ferments are carried by the leucocytes. An exceedingly interesting point was then discussed by Dr. Croftan, namely, the question of incubation. Experiments to determine this point are now under way by Dr. Croftan and although they are yet incomplete enough has been learned to justify a hypothetical explanation. Experiments show that there are enzymes formed in the body so akin to protoplasm as almost to seem alive. A certain amount of pepsin, for instance, will digest a certain amount of albumin. If now the pepsin is diluted and treated in a certain manner it will digest proportionately more al-

bumin than it did before. In this way it may be diluted many times, the results leading to the conclusion that pepsin is capable of regeneration and of assimilation. This leads to the hypothesis that minute amounts of toxin introduced into the body may increase during the incubation period. This is approaching closely the question of life itself. Further results will be awaited with interest.

Conditions for Psychiatric Research.—Dr. Adolf Meyer, Director of the Pathological Institute of the New York State Hospitals, by invitation delivered an address on the above subject at the February meeting of the Philadelphia Neurological Society. Dr. Meyer outlined in part the principles upon which he believes the Institute should be conducted for the benefit of psychiatry. He stated that only thirty to sixty per cent. of the cases conform to the text-book description of the disease in question. Exact records of cases are more necessary in this than in other fields. Most hospitals have an abundance of pathological anatomy reports, but are without a stock of reliable observations. No striking progress in psychiatry has been made except that obtained from well-observed patients. Physicians should be exceedingly careful to make a somatic and psychiatric correlation in the study of all mental cases. The proper place for such study is the hospital for mental diseases. To be true, all pathological material should be carefully worked up, but the psychiatrist should rely mainly on observations, aiming to replace the impressionist method by recorded cases. This means not only the so-called "interesting" cases, but all cases, features promising to be very helpful in future cases being especially elaborated. Examinations of the blood, urine, etc., have not produced any startling discoveries. These points have been arrived at by Dr. Meyer's experience before coming to his present position and they are to guide his reorganization of the Institute. The wards of hospitals must answer for a clinical institute until a special psychopathic hospital is erected. A clinical nucleus must be formed by studying the constitution of the blood, blood pressure, excreta, etc. Some of the departments in the institute will be the psychological, chemical, histological, toxicological, etc. In this way will be combined a knowledge of practical work with a knowledge of psychiatry, both of which are necessary for men working in hospitals for the insane. In this way also help in mastering the subject far beyond that given in medical schools will be made possible. Each hospital in the State can decide on its own policy and choose from the Institute the men best adapted to carry out that policy. A tangible evidence of the policy outlined will be a wider knowledge of insanity, its prevention, and cure. The State must do its part since it, as well as the medical schools, has not yet furnished sufficient opportunities for psychiatric research. The greater part of the material is monopolized by a few favored institutions. The State must aid the hospitals.

CHICAGO.

To Establish a Hospital.—At a meeting of the Alumnæ of the Woman's Medical School of the Northwestern University, held at the Sherman House, February 27th, it was decided to establish a hospital to perpetuate the memory of the school that has been sold by the Northwestern University. The new hospital will be entirely under the management of women physicians. All the different branches of medicine, including surgery, will be practised. Alumnæ of the school which has been sold will act as its physicians. No man can enter this hospital except as guest, janitor or patient. There will be an advisory board composed of women, also. This board will be formed largely of the Alumnæ, probably, who live outside of Chicago. A committee was appointed to carry forward the plans for the hospital, so that they will be in definite shape by the time the Alumnæ gather here in June. The hospital will afford a training-school for young women who desire to become professional nurses. The expenses during the first year will be light, probably not more than four thousand or five thousand dollars being laid out, it is said, in securing a building and equipment. The institution will probably be opened next fall. Eventually, it is planned to build a large hospital, probably rivaling any institution in Chicago. Among those who are taking an active part in the planning of the new hospital are Dr. Sarah Hackett Stevenson, Dr. Eliza H. Root, Dr. Effa V. Davis, and Dr. Mary J. Kearsley. About thirty members of the Alumnæ were present at the meeting.

Endows Consumptive's Home.—Charles L. Adams of Chicago has given $30,000 for the purpose of building a home in Denver, Colorado, for needy consumptives. The gift is in memory of his wife, whose name it will bear. Mr. Adams also offers $20,000 toward endowing and maintaining the plant, providing Rev. F. W. Oakes, who originated the plan, raises the endowment to $50,000.

Promotion of Dr. Bouffleur.—Dr. A. I. Bouffleur, of this city, who has been identified prominently with the medical and surgical department of the Chicago, Milwaukee and St. Paul Railroad, has been promoted to the position of chief surgeon, Dr. Solon Marks, the former chief surgeon of the road, having resigned.

For Better Clinical Work.—Efficiency of the County Hospital is to be increased by additions to the laboratory and pathological museum. An X-ray machine was installed two weeks ago, an official skiagrapher was appointed Monday, February 24th, and instruments have been received from Springfield incorporating the Cook County Clinical School. The incorporators were Warden Healy, President Hanberg, and Superintendent McLaren, and they and their successors in office will continue to direct and manage the school.

The Laboratory.—The nucleus of the laboratory was obtained last year through the contributions of County Commissioners, who turned over part of their salaries to the County because on the platform on which they had been elected they stood for a maximum salary of $3,000, the budget reduced the salary of $4,000 to $3,600 for each Commissioner, and the balance was donated. Since then contributions have been received from several sources, and the laboratory has grown beyond the control of the County Board. In order to provide suitable conditions for rapid growth, the County officials decided to incorporate the laboratory and museum into a school, the management of which is placed in the hands of the Warden, the President of the County Board and the Superintendent of Public Service.

Appointment of Dr. Neely.—Dr. John R. Neely has been appointed Medical Director of the County Institutions at Dunning by President Hanberg of the County Board. The selection was made upon the recommendation of Drs. Frank Billings and Hugh T. Patrick, of the subcommittee of the Advisory Commission, recently named by President Hanberg, to consider ways and means of improving the County Institutions. There will undoubtedly be a complete reorganization of the medical staff, also of the force of attendants and nurses. Dr. Neely was appointed because of his ripe experience and training, which, in addition to his recognized standing in the profession, will make him more valuable to the institutions at this time. To accept the medical directorship of Dunning, Dr. Neely will resign his connection with the City Health Department. He stands

high in the profession and takes with him to Dunning the endorsement of Chicago physicians.

Decision of the Supreme Court Regarding Healers.—The Supreme Court of Illinois has decided that magnetic healers and osteopaths must have a license to practise, in the case of the People *versus* George P. Gordon, an advertising healer of Rockford. It is said that Gordon was charged with practising medicine without a license, and, that after trial the Circuit Court directed the jury to find for the defendant. The Supreme Court reversed and remanded the case. The following is the text of the finding of the Court: "We all agree that the object of this (the statute) is to protect the sick and suffering and the community at large against the ignorant and unlearned, who hold themselves possessed of peculiar skill in the treatment of disease, and to prevent them from holding themselves out to the world as physicians and surgeons without having acquired any knowledge whatever of the human system or of the disease and ailments to which it is subject. Without some knowledge of the location and offices of the various nerves, muscles, and joints, the manipulation of those parts and the flexing of the limbs cannot be intelligently, if, indeed, safely, practised. Merely giving massage treatment or bathing a patient is different from advertising one's business or calling to be that of a doctor or physician, and, as such, to administer osteopathic treatment. The one probably falls within the profession of a trained nurse, while the other does not."

Resignation of Dr. Hammond.—It is said that Warden Healy of the Cook County Hospital has demanded the resignation of Dr. Herbert R. Hammond, a member of the attending staff, because he allowed an interne to perform an amputation under his personal supervision. This action the Warden construed as a violation of the rule prohibiting internes from performing operations in which an anesthetic is administered.

Scarlet Fever.—In contrasting the mortality from scarlet fever and smallpox during the past three years, the Department of Health shows that the mortality from the first was 924, while smallpox claimed only 7 deaths. The hope is expressed that in the foundation of the McCormick Memorial institution for infectious diseases, in which this infection is the first to be studied, that a disease, often more merciful in the life it takes than in the crippled survivor it spares, may finally be shorn of its terrors.

The West Side Hospital.—This hospital has just installed a model operating-room on its fifth floor for the especial use of its attending staff and the professors in the Chicago Clinical School. The room is excellently lighted by three side windows and a circular, fifteen-foot skylight provided with a revolving, adjustable screen, which secures the maximum north light. No hospital in Chicago is better equipped to furnish efficient service than is the West Side Hospital, and the following list of attending physicians and surgeons guarantees skill and experience of the highest grade: Surgeons, Drs. D. A. K. Steele, John B. Murphy, Thomas A. Davis, Charles Davison, E. H. Lee, and Alexander C. Wiener. Gynecologists, Drs. Henry P. Newman, George W. Newton, F. S. Hartman, and S. G. West. Oculist and Aurist, Dr. William L. Noble. Internal Medicine, Drs. Ralph Michel, and P. H. Conly.

CANADA.

Quebec College of Physicians and Surgeons.—The following physicians were recently elected to represent the different universities of the Province of Quebec on the College of Physicians and Surgeons of the Province: University of McGill, Drs. Craik and Lafleur; Laval University, Quebec, Drs. Simard and Catellier; Laval University, Montreal, Drs. E. P. Lachapelle and Demers; University of Bishop's College, Montreal, Drs. F. W. Campbell and J. H. McConnell.

Obituary.—The death is announced of Dr. David Roberge, at the age of thirty-two years, a prominent young French-Canadian practitioner of Montreal. Dr. Roberge was graduated from Laval University and for some time after graduation served as a house surgeon in the Notre Dame Hospital, Montreal. Death was caused by bronchopneumonia.

Dr. John Coventry, Medical Health Officer, Windsor, Ont., died on February 22d from pneumonia. He was a past president of the Ontario Medical Association.

The Medico-Chirurgical Society of Montreal.—This Society meets on the first and third Fridays of the month from October to June inclusive. It has recently acquired fine, new, commodious quarters in the West End Branch of the Bank of Montreal. There is a large assembly hall, comfortably furnished and capable of seating 125 persons. In addition there is a coat-room, a reading-room, a stock-room for the library, and a committee room. All is in charge of an attendant. The reading-room is supplied with the best medical journals and is open from 2 to 6 p.m. and from 8 to 11 p.m. It is proposed to admit non-resident practitioners to membership at a nominal fee.

Undergraduates' Medical Society of McGill University.—The new reading-room of this college society has been completed. It is supplied with the leading medical and scientific journals and the daily papers. The Society was organized in 1879 by Drs. Osler and Buller, and in 1886, in order that it would be properly supported financially, the Medical Faculty adopted the plan of charging each medical student $1.00 per annum along with his other fees. Since that time the finances of the Society have been in a very satisfactory condition. The classes of '01, '02, '03 and '04 have recently erected in a conspicuous place in the reading-room a tablet to the memories of two former students, Harold L. Borden, B.A., and A. Patrick O'Reilly, of Canning, N. S., and Hamilton, Ont., respectively, who lost their lives on the battlefields of South Africa in 1900.

Disease Among Immigrants.—Statements have recently been going through the public press, copied from the United States Bureau of Immigration report, to the effect that diseased immigrants gain an entry into that country through Canadian points. A discussion took place in the House of Commons at Ottawa the other day on a motion to increase the estimates in order to protect the Dominion from the introduction of smallpox by maintaining a constant and close quarantine at Sarnia, Windsor and Niagara. The Minister of Agriculture, under whose care quarantine is, took occasion to state that the diseases referred to were not such as could be quarantined and from what he knew of the matter he was satisfied that these reports in the press were entirely unfounded. He considered that the quarantine laws were more rigidly enforced in Canada than in the United States.

Dominion Registration.—The bill to provide for a Dominion Medical Council has been again introduced into the Canadian House of Commons by Dr. Thomas G. Roddick, M.P. There is very little change from that introduced last session, the change being with regard to the representation on the proposed Council which will now be on the basis of the medical population of each Province. Dr. Roddick has asked that when the measure has received its second reading it be referred to a special committee composed of members of Parliament who are physicians and two or three leading lawyers. When the Bill is before this special committee delegations of medical practitioners from every Prov-

ince of the Dominion will go to Ottawa, and a strong effort will be put forth to have the Bill passed by both Houses of Parliament.

Bill to Amend the Ontario Medical Act.—The Senate of Toronto University and the Medical Faculty thereof are not going to allow the proposed amendment to the Ontario Medical Act to pass without a determined effort to save the college representation. The Bill provides for the extinction of the College and Homeopathic representation on the Medical Council. A lengthy memorandum has been prepared on behalf of the Medical Faculty of the University and has been presented to the Government. In substance it is as follows: (1) It excludes from the body entrusted with fixing and determining the standard of medical education and prescribing the curriculum of studies those who, by reason of their avocation, as well as training and experience, are, if not best fitted, at least specially qualified for performing these duties. (2) It hands over to a practically irresponsible body the entire and absolute control of medical education and creates a close corporation or guild. (3) It imposes on the universities and colleges engaged in the work of medical education the obligation of following the curriculum of studies prescribed by the Council without having any voice in the framing of it. (4) It violates the compact entered into with the universities and teaching bodies by which they were given representation on the Council in consideration of their giving up the right to confer degrees or diplomas in medicine and surgery, entitling the possessor of them, without further examination, to practise upon obtaining his license or becoming registered.

Canadian Surgeons and the Medical (Extensions) Act of the English Parliament.—The Bill to amend the Medical Act of 1858 has been reintroduced into the British House of Commons by General Laurie, a member thereof, who was some years ago a member of the Canadian House of Commons from Nova Scotia. It has been suggested to General Laurie by the fact that the War Office has refused to allow colonially trained surgeons from Canada to attend professionally on other than Canadian troops on active service in South Africa, holding that it was contrary to the Medical Act of 1858. Leading surgeons of Canada, at the opening of the war, volunteered for service, but had to be refused and on this account General Laurie seeks to remove these disabilities. *The Lancet* does not consider that the chances of the amendment being discussed during the present session of the English Commons are very bright.

GENERAL.

Hospital Wing in Memory of Cornelius Vanderbilt.—Mrs. Cornelius Vanderbilt is about to have erected a wing to the Newport Hospital in memory of her late husband.

League Against Infant Mortality.—A society bearing this name has been formed in Paris for the purpose of combating in every possible way the excessive and avoidable mortality of early infancy. The following officers have been appointed: Messrs. T. Roussel, President; Paul Straus and P. Budin, Vice-Presidents; Josias and Variot, Secretaries; Henri de Rothschild, Treasurer.

Shelby County Medical Society.—A temporary organization of Shelby County (Tenn.) Medical Society was effected February 13th and was made permanent February 17th. The following officers were elected for the first year: J. H. Stolper, M.D., Ph.G., President; B. L. Branch, M.D., Vice-President; Geo. E. Pettey, M.D., Secretary; J. H. Liebkemann, M.D., Treasurer; John H. McKay, M.D., Reporter. This is the County in which the city of Memphis is situated; it contains about 400 physicians.

Hospital for Americans in Paris.—A splendid gift has been made for the benefit of the American colony in, and, of American visitors to, Paris by Edward Tuck, who has for many years resided in that city. Mr. Tuck has decided to defray the entire expense of establishing the free American hospital in Paris, announcement of which has already been made, and the ground for which has already been bought in the Passy Quarter. The hospital is to be named Franklin Hospital, and, besides being built on the latest American model, it will be managed entirely by American physicians and nurses. That the proposed hospital will fill a deeply-felt want is shown by the fact that the services of several American nurses who came recently have been in constant demand. Franklin Hospital will be situated in one of the most healthy parts of Paris. It will be surrounded by extensive grounds. Dr. Magnin, a well-known American physician in Paris, will be the director of the institution. Building will be begun in a few weeks, and it is expected that the hospital will be opened in 1904.

Treatise on Smallpox.—A very timely treatise on smallpox is announced for publication early in April by J. B. Lippincott Company. It is written by Dr. George Henry Fox, Professor of Dermatology in the College of Physicians and Surgeons, New York City, with the collaboration of Drs. S. Dana Hubbard, Sigmund Pollitzer, and John H. Huddleston, all of whom are officials of the Health Department of New York City and have had unusual opportunities for the study and treatment of this disease during the present epidemic. The work is to be in atlas form, similar to Fox's "Photographic Atlas of Skin Diseases" published by the same house. A strong feature of the work will be its illustrations, reproduced from recent photographs, the major portion of which will be so colored as to give a very faithful representation of typical cases of variola in the successive stages of the disease, also unusual phases of variola, vaccinia, varicella, and diseases with which smallpox is liable to be confounded. These illustrations number thirty-seven and will be grouped into ten colored plates, 9½ x 10¼ inches, and six black and white photographic plates. The names of Dr. Fox and his associates assure the excellence of the work, in which will be described the symptoms, course of the disease, characteristic points of diagnosis, and most approved methods of treatment.

Medical Society of Tennessee.—The Memphis meeting of the Society is only four weeks distant. Time begins to press. The preliminary program will be issued early in March and the Secretary is particularly desirous that it should be as full and attractive as possible. To this end all members are earnestly requested to contribute a paper and to send in title. The Committee of Arrangements is actively at work in the interest of the meeting and all who come are assured of a warm welcome from the Memphis profession. The Secretary calls attention to the fact that this will be the most important meeting the Society has held for many years. Constitutional amendments involving radical departures from the established policy will come up for final action, and every member should feel a personal responsibility in connection with the consideration and disposal of them. (See Transactions, 1901, pp. 22 and 25.) Attention is also again directed to the Prize Essay Contest, the conditions of which are fully set forth on pages 39 and 40 of the Transactions.

Country Life in America.—The March Country Life in America heralds the coming of spring, and, with added pages, offers a profusion of superb pictures relating to all sorts of wild and domestic life of the

woods, of the fields and of country places. This really magnificent periodical has made in the few months of its existence a lasting name for beauty and interest. As a recommendation by the doctor to his patient it is unsurpassed.

Validity of the Ionization Theory.—In a long review in *Nature* for January 30th, W. R. C. discusses the validity of the theory of ions now on its trial. A few paragraphs may be quoted here. It follows from the arguments adduced that there is no such connection between freezing-points and boiling-points of solutions as the theory demands. Often there is not even a qualitative agreement, let alone a quantitative one. In the realm of physiology the theory does not represent the facts. The heats of neutralization of acids and bases have been used as an argument in favor of ionization, but recent experiments have shown the theory to be not only inadequate, but unnecessary. Neither can the theory be brought into harmony with the law of mass-action; and this is one of the very strongest arguments against it. The ionization theory is at its best in explaining electrolysis, but even here, there are many phenomena that are left unexplained. For example, why are the deposits of silver from some solutions poorly adherent and from others dense and well adhering, the potential—difference and current—density being the same? The analogy between gases and solutions has clearly been pressed too far, and the fact that we are only reasoning by analogy has been forgotten. The solution of a substance and the expansion of a gas are really very different. A gas will expand *in vacuo* or mix with any other gas, but a substance will not dissolve in every liquid. Here lies the chief difficulty of the theory. It neglects the all-important rôle of the solvent. It fails to emphasize the fact that solution takes place because of a mutual attraction between solute and solvent, and that this attraction is the essence of osmotic pressure, which is close related to, if not absolutely identical with, chemical affinity.

Distribution of Firm's Stock.—The firm of Parke, Davis & Co., manufacturing pharmacists of Detroit, has adopted the policy of other large corporations of encouraging its employees to become shareholders. This company proposes to issue 4,000 shares of its capital stock, and permit the oldest among its employees, especially those in important positions, as managers, superintendents and foreman, to purchase this new stock at $55 a share. The present market value of the stock is $70 a share, and face value, $25 a share. The company announces that it is not taking this action for philanthropic reasons, but because it considers it good business judgment to have its men in important positions interested in the profits of the business.

Tua-Tua for Leprosy.—Medical men are interested in the newspaper reports from Honolulu and Tahiti of successful results obtained in the treatment of leprosy from the active principle of the tua-tua shrub. The tua-tua's scientific name is *Jatropha gossypifolia*, and it comes from Venezuela. Nearly three years ago the Department of Agriculture sent twenty-seven of the tua-tua plants to Dr. Carmichael, United States Marine-Hospital surgeon, then at Honolulu, but now in San Francisco. The plants were set out in the experiment station grounds in Honolulu, where they flourished, waxed green and produced many buds. With the plants came statements from Venezuela that leprosy had been successfully treated with the extract. The shrub is called in Venezuela *frailejon purgo*, on account of its purging qualities. Dr. C. E. Camp, assistant in the bacteriological laboratory of the Board of Health of Hawaii, has been experimenting on lepers in Honolulu ever since the receipt of the shrub. The direct effect of the medicine is to reduce the frightful swellings which disfigure the features of the lepers, and which distort their extremities. In Tahiti really wonderful advance toward the cure of leprosy has been achieved by the use of the shrub, but in Hawaii it has been difficult to induce the lepers to undergo the treatment. The use of the medicine is generally accompanied by severe colics, and the Kanakas will not submit to the pain, even though a promise is held out of a partial cure of their terrible affliction. The fact is that leprosy among the Hawaiians is not looked upon with the horror that it possesses for Americans and Europeans, and save for the isolation on Molokai, which leprosy entails upon its victims, the latter show little disposition to do anything to ameliorate their physical condition. The lepers are free to accept or refuse treatment, and cannot be forced to take the medicine. A Portuguese in Honolulu, who had leprosy, was given the tua-tua, and, according to Dr. Camp, shows absolutely no symptoms of the disease now.

Care of the Insane in Washington.—A deficiency appropriation of $35,000 is asked in a communication recently transmitted to the House by Secretary Shaw from Secretary Hitchcock for the support of the Government Hospital for the Insane for the present fiscal year. A statement by Dr. Richardson, superintendent of the hospital, which accompanies the request, states that the daily average attendance for the current year will exceed that of the year previous by about 134. The advanced price of many articles of food is also given as a reason why more money is needed. The fresh meat contract alone is increased $5,000 over last year. In addition to this it has been necessary to purchase 200 bedsteads, with the necessary bedding.

Obituary.—Dr. Elizabeth B. Wakeley died on Thursday at the residence of her son, Dr. William A. Wakeley, 420 South Main Street, Orange, N. J., where she was visiting. She had been a practising physician in New York State for more than thirty years. She was born in Connecticut seventy years ago, but had spent most of her life at Levanna, on Cayuga Lake, N. Y.

Dr. Edward Mott Moore, a prominent citizen of Rochester, N. Y., died March 3d at the age of eighty-eight years. He was born in Rahway, N. J., on July 15, 1814, of Quaker and Huguenot ancestry. After attending school at Flushing, Long Island, he was sent to the Rensselaer Institute at Troy and afterward came to Rochester, in 1828. He was graduated from the University of Pennsylvania in 1838, and from the Medical College at Woodstock, Vt., in 1854. He was known prominently in the work of the Red Cross Society of New York State, and as "The Father of the Parks" of Rochester.

Dr. Worthy Streator, a physician of Cleveland, died March 3d. He was the man after whom the city of Streator, Ill., was named. In early life Dr. Streator helped to build what is now a portion of the Erie Railroad. He was eighty-five years old.

Dr. Arthur T. Muzzy, of No. 100 East Fifty-seventh Street, New York, well-known as a specialist in diseases of the eye, ear and throat, died early Tuesday morning in the Presbyterian Hospital from heart disease. He was the son of the late Rev. Dr. Clarendon Vey Muzzy, a missionary to India, and was born fifty-one years ago in Madura, India. Dr. Muzzy has always been very active in the hospital work of New York and was especially devoted to the interests of the Charity Alumni Association.

OBITUARY.

ERVIN ALDEN TUCKER, M.D.

The sudden death of Dr. Ervin Alden Tucker, from pneumonia, on March 3, removes from the profession one of the most able of the younger men of New York City. Although Dr. Tucker was but forty years of age, and had been in private practice as an obstetrician for only seven years, yet he was entering the first ranks in his specialty, and had become well-known as a consultant physician in New York and other cities.

His almost phenomenal success, and the rapid growth of his fame, were, however, the result of years of preparation, when with concentrated energy and singleness of purpose he devoted every faculty to his one interest and ambition.

Dr. Tucker was born Feb. 2, 1862, in Attleboro, Mass., where his early education was obtained. He

ERVIN ALDEN TUCKER, A.M., M.D.

was prepared for college in Moury and Goff's Classical School in Providence, R. I. At Amherst College, where he took the degree of B.S. in 1885 and M.A. in 1888, he laid the foundation for his scientific work, instead of pursuing his classical studies. An interval of two years passed before he began his medical studies, during which time he taught modern languages in Betts Academy in Stamford, Conn.

During the three years of his medical course at the College of Physicians and Surgeons, he was a marked man, and his unusual faculties and apparent inclination for the branch he chose, were noted by his professors. When he graduated in 1889, it was as one of the ten honor men, and a winner of the second Harsen prize. It is remembered, that when he received his honors, some one asked why young Tucker won such a prolonged round of cheers from his class-mates, and the reply of one of his fellow students was to the effect that his class had hoped that he would be a prize man because he had gone through the college on his own efforts.

After a six months' residence in the nursery and childs' hospital he went to Germany where he devoted all his time to the study of obstetrics under Olshausen, Winter, Dührssen and Winckel. He studied various methods of conducting lying-in hospitals, and came home ready for his chosen work.

In the Spring of 1890 his career really began, for he was then appointed resident physician in the Sloane Maternity Hospital. During the five years that he worked there he had the satisfaction of seeing the service increase from 400 to 900 confinements a year, and of seeing the Hospital grow, by reason of his interest and methods into the largest obstetrical hospital as well as the most fully equipped in the country.

Before Dr. Tucker left the Sloane Maternity Hospital he married Miss George Anna Crispell of Rondout, N. Y., and together, each with the interest of the hospital at heart, they helped the founder of that institution to carry it to the state of perfection.

When in 1895 he resigned to begin private practice in obstetrics, he was made Assistant Attendant to Sloane, and was shortly after appointed as one of the attendants to the Obstetric Division of the City Hospital on Blackwell's Island.

Dr. Tucker's practice increased with a rapidity that was startling. But there was hardly a young physician in the city who did not turn to him, considering him one of them, and yet as able as the most celebrated of the older men to help him in difficult cases.

He was a master of technic, and he had that swift sure judgment that comes with long experience and well thought out methods. His detail was perfect, and whether he was working in the wards, or bringing an heir to millions into the world, his work was performed in that same thorough, careful and successful way. To see him work was to realize that he was an artist of the highest scientific type.

CORRESPONDENCE.

OUR PARIS LETTER.

(From Our Special Correspondent.)

PARIS, February 22, 1902.

PROFESSOR GILBERT NAMED PROFESSOR OF THERAPEUTICS—THE USE OF ELECTRICITY IN SPRAINS—ADULTERATION OF MILK IN PARIS—SERUM OF TRUNECEK.

Dr. Gilbert, one of the best known of the younger professors of the Faculty of Medicine, has just been named professor of therapeutics, a position which has been occupied several years by Professor Landouzy, who has acquired much fame on account of his discoveries in neurology. Dr. Landouzy, while occupying the chair of therapeutics, insisted on the distinction that existed between treating diseases and treating patients. He had a set of aphorisms to explain his ideas on therapeutics which were the following: Therapeutics as a science should always be clinical, pathogenic, physiological, opportunist; clinical as to its sources of information, pathogenic in its indications, physiological in the methods used, and lastly opportunist in its decisions. Professor Landouzy has been given the chair of clinical medicine, vacated by Professor Jaccoud, the author of the treatise of medicine which preceded that of Dieulafoy.

Drs. Charrier and Planet have called the attention of the French medical public to the advantages of the use of electricity in sprains. This treatment is hardly men-

tioned in most treatises on electrotherapeutics, though some English authors speak of it without, however, giving any clear indication of the method to be employed. Apostoli recommended using the faradic current with very rapid interruptions. The electrodes should be of carbon covered with chamois skin, and, while the positive tampon remains in one position, the negative one is moved all over the painful area. The results would seem to be surprising; after five minutes the patient is able to get up and walk, the pain having ceased for the time being. Two applications should be made daily, and the patient told to walk as soon as possible.

There has been of late quite a discussion not only among medical men, but also in the general public as to the milk supply of the City of Paris. The *Matin*, a prominent daily, started it by describing the various methods of milk adulteration, and asking for the establishment of a League for the Defense of Human Life, the members of which would be requested to contribute only one, two, or three francs. They could send samples of the milk they received to a special laboratory, where the milk would be analyzed. If the report was adverse, the seller would be prosecuted and the damages awarded would be handed over to the member who had given in the sample. It seems that the City of Paris uses 700,000 liters of milk daily; 200,000 liters are furnished by the dairies included in the metropolis, and 500,000 are brought from the country. The first-mentioned varieties would seem to be the best, as strict supervision is exercised in order to prevent the use of tuberculosis cows. Moreover, there is less chance of the milk being adulterated, as it can be bought directly. It is quite different with milk brought from the country, which is first collected by certain farmers and handed over to collectors, who send it to Paris, where it is distributed by other milkmen to the retailer. The milk is therefore handled by four different groups of men, who try to make as much profit as possible, so that milk, which costs in the country only nine to eleven centimes, is sold at forty centimes to a franc in Paris.

Still another serum has been placed upon the market and is being extensively advertised. It is called the serum of Trunecek and is supposed to produce most remarkable results in a variety of conditions. Two articles on this serum have appeared in the *Presse Médicale*, signed by a Dr. Leopold-Lévi, and prospectuses have been sent out by a well-known druggist in Paris. It is a mooted question whether this latter preparation will take on as well as cacodylate of soda and lecithine, which were the fashionable drugs last year.

Dr. Poirier, who is one of the best known operators in Paris, has just reported his first death from chloroform. The patient was an emaciated old woman suffering from cancer of the stomach. Some twenty-five minutes after the operation had been begun, the heart suddenly stopped beating. The writer of this letter happened to be in Dr. Poirier's service a little over a month ago, when he was examining this woman and trying a new apparatus for gastroscopy, when Dr. Poirier made the remark that he had never lost a patient from chloroform.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held January 25, 1902.

Palmer C. Cole, M.D., Chairman *pro tem.*

Gangrene of Genitalia.—Dr. Ramon Guiteras reported the case of a young man, aged twenty-three, in his service at the City Hospital, who came under treatment suffering from an extremely raw and inflamed condition of his genitals. This inflammatory condition had lasted for some time and all the superficial skin of the testes and the lower part of the penis had sloughed away, the penis being uncovered from the corona to a point about half an inch from the pubis, the testes bare, drawn up against the opening of the external canal and covered with a whitish, sticky exudate. By a series of flaps of skin obtained from perineum and the adductor surfaces of the thighs, the genitalia were covered successfully after careful sterilization of the tissues. The plastic operation proved very satisfactory and the result enables the man to go about his occupation as before. After the operation some details of the man's previous condition were obtained from himself and friends. He had been a laborer in a brickyard; and the first symptom of his ailment seems to have been an enormous swelling of the scrotum, which was very painful, tender and the size of a baby's head. The physician who was called in laid open the scrotum freely and found that, as the result of the pressure on the tissues, certain parts of the skin were already gangrenous. Charcoal poultices were applied freely and the tissues continued to slough for several weeks. It seems evident that the origin of the condition was probably an extravasation of urine into the scrotum. There is no history in the case of a catheter having been employed, but Dr. Guiteras has seen other cases in which this seemed to be the occasion for the gangrene. There is the possibility of severe trauma setting up such a condition, but there is no history of any accident in this case. Such gangrenous sloughing of tissues may occur rather readily in diabetic patients, and sometimes in tuberculous patients. One might think of a phagedenic process in such a case, but a phagedenic sore would not involve the cutaneous tissues alone, but would spread deeper and produce more serious consequences. It seems preferable always to do plastic work in covering up the testicles than to leave these organs to become covered by granulation tissues. Dr. Guiteras has seen the enlarged scrotum of patients suffering from elephantiasis submitted to surgical treatment. In these cases the affected tissues are simply dissected away and the testicles are allowed to become gradually covered by granulations. In these patients, however, adhesions are likely to form, the scar becomes painful and irritable, movement is interfered with and the genitals are held by cicatricial tissue as in a vise.

Unaccountable Asthma.—Dr. John H. Huddleston describes a case in which the patient suffered from what were presumably asthmatic attacks, until the end of the case revealed malignant disease as the basis of the symptoms. The patient was a man aged fifty-six years, a widower, by occupation a clerk, coming of a long-lived family, and without any tuberculous or malignant history. About twelve years ago, according to his own story, he suffered from locomotor ataxia; he was, however, cured of this condition by a nerve specialist in nine months. He had the habit of taking four or five whiskies a day, but could scarcely be said to be frequently under the influence of liquor. His symptoms consisted of asthmatic attacks with cough, more at night but continuing also during the day. There was prolonged expiration and some squeaking râles on inspiration. Each day he expectorated two to four ounces of frothy sputum. He experienced considerable dyspnea even after moderate exertion, and this dyspnea was marked not only during expiration, but during inspiration. He was put upon iodide of potassium, but the drug did not relieve his symptoms. Asthmatic cigarettes also failed to give him any relief. Morphine in doses of one-eighth of a grain was the best remedy and the most satisfactory during his asth-

matic attacks. After being under treatment for some weeks he complained of difficulty in swallowing. This, however, seemed to be mainly subjective, for when asked to do so in the physician's presence he was able to swallow various food substances without great inconvenience. He complained considerably of gas in his stomach and after awhile refused to take any but liquid food. This gave rise to some alarm and the diagnosis of the case seemed to lie between hysteria, nervous dyspepsia and an organic lesion of the esophagus. A consultant who was called in to see the case thought the patient might be suffering from an aneurism. There were, however, none of the ordinary physical signs of this condition. Two months after his taking to liquid food there was considerably more expectoration than before. The patient used to cough up from eight to ten ounces of frothy suptum during the twenty-four hours. As his symptoms continued to increase and his dyspnea was a source of great discomfort, while he was constantly losing in weight, another consultant was summoned.

Diagnosis and Autopsy.—Dr. Janeway found on examination of the patient an evidently fresh fracture of the eighth rib. No reason could be found for the existence of this fracture. There had been no trauma or accident of any kind. After careful examination Dr. Janeway gave the opinion that the patient was suffering from possible carcinoma of the esophagus. Nothing could be done for the relief of the symptoms, the dyspnea increased to orthopnea, and the patient died four days later. At the autopsy an ulcerating carcinoma of the esophagus was found, involving some four inches of the esophageal tube. There was no stricture of the esophagus in the neighborhood of the malignant growth. A finger could very easily be passed through it and the difficulty in swallowing was evidently a nervous reflex, rather than an actual mechanical obstruction. The carcinomatous growth had spread by contiguity to the larynx, and a papillary carcinoma about half an inch in diameter filled up the lumen of the larynx. There was at no time any external evidence of tumor and there seems to have been no way in which the presence of the growth could have been diagnosed with certainty during the life of the patient.

Cervical Cancer in Pregnancy.—Dr. Egbert H. Grandin reported a case of cancer of the cervix uteri in which the size and position of the malignant growth would seem to preclude the possibility of conception taking place. The patient was an Italian woman who came to the hospital suffering from constant hemorrhage. The entire vaginal portion of the cervix had disappeared and the uterine tissues seemed completely infiltrated with the malignant growth. The uterus was found large and movable and there seemed to be no involvement of parametric tissues. It was resolved, therefore, to do a complete hysterectomy by the abdominal route. The uterus was found to be distinctly enlarged and within its cavity there was a fetus of about five months. In such cases, that is, in cancerous involvement of the body of the uterus, hysterectomy is the surgical indication, and yet operation seems almost useless since there are always recurrences. Dr. Grandin does not think that he has ever seen a case in which recurrence did not take place after hysterectomy for cancer of the uterus.

Extra-Uterine Pregnancy Without Classical Symptoms.—Dr. Grandin gave the details of a case in which the patient suffered from extra-uterine pregnancy, though none of the classical symptoms set down in the text-books as characteristics of that condition were present. Careful taking of the history failed to elicit any account of hemorrhage after an interval of amenorrhea. The pain was not of the intense prostrating character that is usually spoken of, but was rather spasmodic and resembled colicky pains of the intestines. No portions of the decidua were passed. Menstruation had been regular except the last; this had occurred at the regular time, but there was less flow than usual. Normally it lasted about six days, but this time it persisted for only three. This is not an unusual symptom and must sometimes give rise to the suspicion of extra-uterine pregnancy. The amount of menstrual flow was very small. Examination showed the presence of a small uterus, with a mass lying free in front of it thought to be a hydrosalpinx, and operation was advised because the pains had become almost constant and were a source of great discomfort. It was not until beating vessels were recognized in the tumor at a subsequent examination, more than a week later, that extra-uterine pregnancy was diagnosed and the operation performed.

Pseudopregnancy.—Dr. Grandin was recently called in to see a woman who, it was supposed, was about to be confined. She presented an enlarged abdomen and enlarged breasts and the history showed the characteristic vomiting of pregnacy and continued amenorrhea for about the usual length of pregnancy. Examination, however, showed a hard cervix and a small uterus. Dr. Grandin gave an anesthetic, and under its influence the sphincters collapsed, the windy tumor of the stomach disappeared and the imaginary baby was delivered.

Imaginary Labor.—Dr. Brewer related the case of a woman supposed to be in labor, whom he had recently seen in a lying-in-hospital. She had had three children before and was suffering apparently from regular normal labor pains, which occurred about every five minutes. The cervix was found to be hard, however, the uterus was not enlarged and no fetal heart sounds could be heard. After a time the woman was persuaded that she was not in labor, her pains ceased and she left the hospital. Three days later she was brought in again in an ambulance, once more with characteristic labor pains, after having excited the sympathy of her neighbors at home. She turned up at another hospital for the third time within two weeks and seemed finally to have been convinced that the symptoms of labor were only imaginary. Dr. Brewer made it his business to follow up the case and inquired of her sister with regard to the condition of the patient. The sister assured him that the woman had been once more taken with labor pains and had been delivered of a healthy child, by a private physician. In order to make the records of the case complete he asked the name of the physician, whom he looked up but found that he had died several years previously.

Environment of Imaginary Pregnancy.—Dr. Grandin, in discussing Dr. Brewer's case, said that the patients who suffer from imaginary pregnancy usually occupy very definite environment; they are mainly widows who have every reason to fear that they may be pregnant and to whom memory serves as a stimulus for the repetition of the symptoms that occurred during former genuine pregnancies. Dr. Grandin has recently had two such cases and it was extremely difficult to persuade the patients that there was no pregnancy in progress. Occasionally these symptoms occur in elderly unmarried women, when, however, the symptoms are more anomalous and do not resemble the signs of ordinary pregnancy so closely. Frequently the only differential diagnosis possible must be made after a bimanual examination. As a rule, the examining finger comes in contact at once with a hard cervex and this is of itself sufficient to decide against the existence of pregnancy.

Pregnancy and Exstrophy of the Bladder.—Dr. A.

Palmer Dudley in commenting upon Dr. Grandin's case of pregnacy in a patient suffering from carcinoma of the cervex uteri and the consequent necessity for the spermatozoa to penetrate the foul, ulcerous mass, detailed a case in which there would seem to be even less possibility of pregnancy occurring. The patient suffered from stone in the bladder, which was removed with the forceps, causing an exstrophy of the bladder into the vagina. The orifices of both ureters could be seen in the vagina and there was a constant flow of urine from the parts. Usually spermatozoa are said to be affected very seriously by such acid secretions as urine, but in this case they succeeded in finding their way into the uterus and impregnated the ovum.

Phantom Tumors.—Dr. Dudley has recently seen two cases of characteristic phantom tumor. One of the patients was a young Irish woman, twenty-seven years of age, whom Dr. Dudley found noisily complaining of what seemed to be regular labor pains. As the cervex was hard and the uterus of normal size, Dr. Dudley at once declared that she was not pregnant and not in labor. The result of this surprising declaration to the patient was that she got out of bed very quickly and Dr. Dudley got out of the house very rapidly. Subsequent developments, however, proved not only to the friends of the patient, but even to the patient herself that she had not been pregnant. A certain number of these cases of imaginary pregnacy are due, in Dr. Dudley's opinion, to a sudden large accumulation of fat in the abdominal wall and cavity of certain women. This is a special large-celled fat, growing with particular rapidity, and when the patient walks it produces a certain joggling motion in the abdominal wall that seems to be the ground for the imaginary idea of fetal movements. Of course, occasionally, the phantom tumors are really due to nothing more than an accumulation of gas in the intestines, which patients seem to have the power of retaining for a long time when under the influence of certain mental ideas, and the consequence is a persistent tumor that constitutes the best objective sign of the supposed pregnancy.

Measles Before Six Months.—Dr. Edward M. Foote said he had recently consulted a prominent specialist with regard to measles in children, and had been told that the disease practically never occurs before the age of six months. He asked for the experience of others with regard to the occurrence of the disease in early infancy.

Dr. Bryant said that in his connection with the Hospital for Contagious Diseases he had seen a number of cases of measles in children under six months of age. Besides this he has seen a number of relapses of the disease and thinks that measles provides the least protection against a second attack of any of the infectious diseases of childhood. In one case Dr. Bryant had seen five relapses of measles, after each of which the patient was free from rash for at least one week before the new crop of measles lesions appeared. He has also seen patients suffer successively two and three attacks of the disease.

Second Attacks of Syphilis.—Dr. Sturgis said that he has seen several cases of second attack of syphilis occur under his own observation. He is sure in these cases that the patients after an interval of several years had a repetition of their syphilitic symptoms running through all the so-called stages from primary to secondary lesions, showing that there had been a reinfection. One of his patients was a young man who had a light attack of syphilis at first, and some six years later a severe attack. The other patient was older and had severe syphilis at first and later a comparatively mild attack. The most interesting feature of these second attacks is the fact that they give absolute assurance that under certain circumstances the disease is completely cured; a second attack would not occur so long as any remnant of the previous infection remained in the system. Such evidence as this is of special importance at the present moment, when there are exaggerated notions of the incurability of syphilis; many eminent specialists incline to the opinion that years of medication are required for its eradication; some practically advise discontinuous medication at intervals for most of the rest of life. This makes the question of syphilitic therapy rather discouraging and the assurance of cure in certain cases is, to say the least, a consolation.

Treatment of Syphilis.—Dr. Eugene Fuller said that syphilis is a disease that must always be treated with respect. It is at least as serious a pathological condition as tuberculosis in any of its forms, and the more one learns of its pathology, the more serious has its significance become. Dermatologists are prone to make less of it than is perhaps justified by the ultimate results in many cases. Neurologists, on the other hand, who see only its effect on the central nervous system, never slight it. There is no doubt that it affects all organs; many more cases of liver trouble than are usually attributed to it are really due to its existence in the system. The fact of the matter is that most patients are not treated with sufficient thoroughness; after five or six months patients see no further symptoms and can find no reason for continuance of treatment or for further visits to the physician. They conclude that the doctor is working them, lose confidence in medicine and the result is the development of the serious sequelæ of the disease a little later.

Syphilis and Infant Mortality.—Dr. Grandin said that the importance of syphilis in women's diseases and in obstetrics could scarcely be exaggerated. Not only syphilis but the other venereal diseases are extremely important. The gynecologist who sees serious lesions of the female genital tract and the obstetrician who assists at the birth of dead children feel strongly the necessity for regulation that would make these diseases less prevalent than at present.

Dr. Dudley said that the results of syphilis in the newborn were of themselves sufficient to make physicians realize the awful importance of the disease. He knows of thirteen children who have been lost in two families because of two syphilitic fathers. Syphilis is undoubtedly worse than tuberculosis, and at the present time, when so much is being done to prevent the spread of tuberculosis, physicians should be ready to begin the crusade for the prevention of syphilis.

Dr. Sturgis said that the neurologists are daft on the subject of nervous syphilis. The easiest argument in the world to make is *post hoc ergo propter hoc*, and it is the argument most liable to mistake. It is conceded that syphilis may affect every tissue, yet it is seldom a fatal disease and it is by no means so unamenable to treatment as is often said. It is not easy to differentiate tuberculosis and syphilis and some cases are attributed to syphilis undeservedly. Women suffer seriously from syphilis, but do not die from it, though it must be confessed that child mortality is greatly increased by it. Drinking habits and syphilis often go together, and the supposed serious sequelæ of syphilis are often really due to alcoholism.

RUSH MEDICAL SOCIETY OF CHICAGO.

Stated Meeting, Held February 3, 902.

Dr. Dickerman in the Chair.

Huntington's Chorea.—Dr. Harold N. Moyer reported four cases of Huntington's chorea. Two of these presented a family history in which the disease had occurred in a direct line for four generations, as

well as appearing in numerous collateral branches. He referred to Huntington's original paper, published in 1872, and stated his belief that one of his patients, who was born in southeastern New York, probably belonged to one of the original "megrim families" upon which Huntington's description was based. Huntington's chorea is a variety of the progressive degenerative chorea of adults, which is only to be distinguished from the latter by its family type.

Dr. George W. Hall, in discussing Dr. Moyer's paper, said that there is nothing more interesting in medicine than the study of nervous diseases and especially their history. It is, however, unfortunate that the disease under discussion has been named Huntington's chorea. It differs in a great many ways from the chorea of childhood as far as its pathology is concerned and Huntington, as has been stated, was really not the first to describe the disease. Waters of New York, in a letter to another physician, mentioned practically the diagnostic points of this form of chorea thirty years before Huntington published his article, which was read before the Meigs and Mason Medical Society in Ohio in 1872. Waters in his letter to Dr. Dunglison mentioned the four following points, *viz.*, (1) the pronounced hereditary tendency of this form of chorea; (2) its rarity before age of forty-five; (3) its incurability; (4) its tendency to dementia. Huntington believed that this disease was peculiar to a certain locality in New York and he noted the heredity, the gradual tendency to progress as well as the tendency to suicide or dementia. Dr. Moyer states that there has been no variation from Huntington's statements down to the present time. Huntington made an unconditioned statement that when one generation was skipped, this disease never occurred in any succeeding generation, or, to use his words, that is was handed down as an heirloom from one generation to another, differing in this respect from syphilis and tuberculosis. Recent literature contains records of cases in which one generation has been skipped and the disease again presented itself. And if he noted correctly, one of Dr. Moyer's cases presents such a history. Dana, however, records a case, a male, aged thirty-seven, whose great-great-grandmother, great-grandmother, grandmother and mother were affected similarly. Dr. Moyer, he believed, made the statement that the symptoms and choreiform movements could not be distinguished from those of childhood. The movements certainly differ from those of Sydenham's chorea in that they are coarser, more irregular, incoordinate and lack rhythm. The progressive tendency toward dementia is noted in most of the cases reported. Osler states that it is a neurodegenerative disorder, that the cerebral changes are very similar to those found in chronic dementia—a meningo-encephalitis. Dr. Good of Michigan, who made a very complete postmortem report on a case observed by him in one of the Michigan insane hospitals, found considerable atrophy of the brain convolutions with marked adhesions of the brain coverings, changes in the vascular system and great cell degeneration.

Anatomy of the Ear.—Dr. George E. Shambaugh demonstrated a series of anatomical preparations of the ear. The study of the anatomy of the ear is in many respects not an easy matter. The ear has a very complicated structure and the parts are crowded together into such a small space, while the whole is encased in the solid bony walls of the temporal bone, that it makes their study by the ordinary methods of dissection quite unsatisfactory. The study which the student of medicine usually puts on the anatomy of the ear in the dissecting-room consists of chiseling a hole into the pneumatic spaces of the mastoid process. What facts the student may have at his command of the anatomy of the ear he has gathered from descriptions in textbooks. Knowledge acquired in this way is not the real, definite knowledge that the student can apply readily when studying clinically the diseases of a part. The most serious problem one has to contend with in giving clinical instruction in otology is this lack, on the part of the student, of any definite knowledge of the anatomy of the ear. A clear, definite mental picture of the structure of the organ of hearing is best acquired by the study of actual anatomical preparations of the ear made especially to bring out the various parts. Such a set of preparations were shown. The set includes the following: (1) A series of sections of the dried temporal bone cut through the various planes so as to bring out clearly the different parts. (2) A similar series of moist preparations with the soft parts intact, including preparations of the external ear and the Eustachian tube. (3) Corrosive casts made of Wood's metal. These casts are specially useful for showing the structure of cavities like the spaces in the temporal bone occupied by the organ of hearing. (4) Casts of the labyrinth alone and others of all the spaces in the temporal bone, including the labyrinth as well as the mastoid cells and the external meatus. (5) Pen-drawings of most of the preparations made just twice the size of the actual preparation, with each point of interest labeled with its correct term according to the B. N. A. system. By comparing the preparation with the drawing, the student can, without any difficulty, pick out any point on the preparation and get its correct name.

The specimens were highly commended by Prof. Holtz and Dr. Dickerman as being of great value in teaching. Dr. Moyer spoke of them as being of special value in demonstrating the anatomical relations of the ear to the brain.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 8, 1902.

The Vice-President, George G. Peabody, M.D., in the Chair.

The order of business included the discussion of the resolutions on the action of the Treasury Department declaring pulmonary tuberculosis "a dangerous contagious disease" and debarring consumptive aliens, rich and poor, from entering the country.

In discussing the resolution Dr. Knopf said that to declare consumption a dangerously contagious disease is to advise public opinion that even incipient tuberculosis must be sedulously avoided. As a consequence patients suffering from early tuberculosis will fear to consult a physician because of the dread of social ostracism if it be once known that they are suffering from the malady. Practically the only chance for the successful treatment of tuberculosis is during the incipient period. In our American sanatoria seventy-five per cent. of the incipient cases are discharged cured. The resolutions offered do not counsel the admission of pauper immigrants suffering from tuberculosis nor condemn the Treasury Department for refusing to admit them. Emigrants, however, who are well able to take care of themselves, or to provide for their care should not be debarred for fear that they will prove centers for the distribution of tuberculosis.

Dangerous Contagion.—To say that a disease is dangerously contagious implies that mere contact with a patient suffering from it may cause the development of the disease in another. This is not true for tuberculosis, and only long exposure to respiratory infection will bring about its development in those who live close to tuberculous patients. There is no danger even from

this form of infection if proper precautions of cleanliness are observed. It is evident then that the Treasury Department resolution is exaggerated and not founded on scientific observation nor on experiment. The Academy of Medicine by adopting these resolutions will state the proper position that the medical profession assumes on this subject and will prevent an outbreak of phthisiophobia that might easily have serious consequences.

Presumption of Small Representation.—Dr. Quimby said it would be presumptuous to let the few members of the Academy present—not more than fifty or sixty in all—set themselves up as the representatives of the 10,000 medical men in New York. The Treasury Department decision is in accordance with recent advances in knowledge of tuberculosis. These patients are a source of danger to others. If the paper must be stripped from the walls of rooms in which tuberculous patients have lived and it is declared that only fire can really accomplish the purpose of properly cleansing such rooms, the logical outcome of this knowledge must be faced and the surveillance of tuberculous patients must be insisted on. Otherwise medical men stultify themselves before the public by announcing one thing in theory and then fearing to carry out the practical conclusions.

Infection and Contagion.—Dr. William H. Thomson said that years ago he proposed a distinction in the significance of the two words infection and contagion. Infectious diseases were those due to micro-organismal activity. Contagious diseases were those in which proximity of the well to the sick brought on the disease. There is an entire class of infectious diseases that are non-contagious; of these typhoid fever is a good example. Years ago the Boston Health Board declared cholera non-contagious and said that it was due to a miasm that spread through the air; hence measures need not be taken to guard against it. It is unscientific to label tuberculosis contagious and the New York Academy of Medicine compels the Board of Health to eliminate the word contagious from their rescript with regard to the disease. It is a reproach to the profession that the Treasury decision should stand without protest.

Dr. Dana said that the resolutions in his opinion should not be passed, as was proposed, but should be referred to an authoritative committee. This would stamp the action of the Academy as thoroughly official and considerate.

The resolutions proposed by Dr. Knopf were then carried by vote of the members present.

On motion it was also resolved that a copy of these resolutions should be sent to the Treasury Department in formal manner and also to the State medical organizations of New York.

Tuberculosis Wards on Blackwell's Island.—The report of the Committee appointed by the Academy to examine the buildings on Blackwell's Island, recently abandoned by the State Hospital for the Insane, to decide as to their possible usefulness as wards for tuberculous patients, was accepted. They consider that these buildings will be suitable for advanced cases of consumption and only for these after certain improvements suggested by the Committee have been made in them. The Committee consider that these buildings should be looked upon only as a temporary provision for tuberculous patients and that their occupation should not delay the arrangement of other ways of taking care of the tuberculous.

Phenomenon of Inhibition.—Dr. S. J. Meltzer read a paper on the phenomenon of inhibition and its possibilities in pathology, especially in its relation to myxedema and exophthalmic goiter. Dr. Meltzer said that the demonstration of the power of the vagus nerve over the heart opened up the whole subject of inhibition. Stimulation of the inhibitory fibers produce a number of effects upon the heart; it lessens the power of the organ to contract, it diminishes the tonus of the cardiac muscle; it diminishes its excitability and its capability of responding to stimuli; it abolishes conductivity within the heart structures, and, finally, it changes the electrical reaction of the cardiac muscle. Stimulation of the accelerator fibers produces just the opposite set of effects. This picture of the influence of inhibition gives the best general idea of the character of this property of nerve tissue influence that can be formulated. Inhibition may be exercised over nearly every tissue in the body. Function may also be inhibited and secretions prevented. The influence on other tissues is almost as extensive as on the heart, which is the type of this form of physiological effect. The most important characteristic is the omnipotence of inhibition over all cellular tissues.

Irritability used to be considered the most specific and essential characteristic of vital tissues. It is now known that inhibition is quite as extensive a property of tissues as irritability. All the connective tissues are irritable, which, as will be seen in the course of the discussion, may mean either excitation or inhibition. During life rest is as vital for tissues as activity. Most of the states of tissue existence lying between the exercise of function and rest are the resultant of the two forces, excitation and inhibition. Inhibition has sometimes been considered the process of anabolism, the building up of tissues. On the other hand, excitation has been considered coextensive with metabolism, the pulling down of tissues. Neither of these definitions is complete, however, and anabolism may proceed apart from inhibition.

If the two antagonistic nerves to the heart, the inhibitory and accelerator nervous fibers be stimulated, the only effect noticed immediately is one of inhibition. This inhibition is only a little less in quantity than if the vagus were stimulated alone. The accelerator nerve as an antagonist to the inhibitory nerve does not produce much effect. The effect of stimulation of the inhibitory nerve, however, soon passes off. The stimulation of the accelerator continues for some time afterward and can be noted when the inhibitory effect has completely ceased. The inhibitory nerves become exhausted much sooner than the accelerator nerves.

Motor Nerves and Inhibition.—Skeletal muscles respond to stimulation and it is often asked why the effect of inhibition is not noticed. As a matter of fact, the contraction of any muscle is accompanied by an inhibition of the tonus of the antagonistic muscles. Stimulation of the flexors, for instance, from the brain cortex inhibits the tonus of the exterior muscles in the same limb. At times in addition to these antagonistic actions a partial set of opposite effects are noticed on the other side of the body. This crossed innervation can be noticed in many functions of the animal organism.

Inhibition and Biliary Secretion.—The flow of bile into the intestine is one of the physiological mysteries that have not as yet been entirely explained. The splanchnic fibers of the vagus distributed to the intestine seem to act when irritated by the presence of food in the duodenum as inhibitors to the muscles associated with Vater's papilla, through which the biliary and pancreatic secretions are emptied into the intestine. This is not, however, the only action necessary in order to secure the presence of bile in the intestine. Some nervous reflex must be communicated to the gall-bladder so as to produce contraction in and evacuation of its contents. Needless to say these various actions

require a very delicately adjusted nervous mechanism which may easily get out of order; when it does, interference with the free flow of bile results. It is evident, then, that there are many causes besides catarrhal conditions of the biliary tract and biliary calculus that may prevent the flow of bile. Certain reflex nervous conditions may readily simulate mechanical obstruction of various kinds; undoubtedly, the emotional icterus so often described by French writers is due to interference with the delicate nervous mechanism that controls the flow of bile. Many of the reported cases of catarrhal icterus are, in Dr. Meltzer's opinion, due to reflex interference with the inhibitory and excitator apparatus of biliary flow. When there has been preceding gastro-intestinal catarrh, the diagnosis of catrahal icterus is well justified. When no symptoms of gastro-intestinal catarrh have occurred, the assumption of the existence of a biliary catarrh is at least suspicious.

Gastric Disturbances and Nervous Reflexes.—When gastric digestion is seriously disturbed, the gastric contents passed on to the intestine may prove entirely unsuitable for awakening the reflex nervous influences on which biliary secretion depends. When the chyme, for instance, has been crudely prepared, or when it is ejected from the stomach, covered by mucus, its presence may fail utterly to give the necessary reflex stimulation for the biliary apparatus. The problem of inhibition and of excitation in this part of the gastro-intestinal tract is extremely intricate, but its solution will enable the physcian to realize the etiology of many conditions that are now obscure, though certain words employed to explain them seem to give some idea of the true cause at work.

Inhibition and Colic.—Colic is usually considered to be due to a spasm of a mucous canal. This explanation, however, scarcely serves to make clear the intense twisting and sometimes increasing pain that characterizes colicky attacks. The real explanation seems to be that colic occurs when two parts of the intestinal canal are strongly contracted. These two portions are not far apart and while the lower one has a constant position the upper spasmodic contracture moves downward; this forces the gas and other contents of the intestine against the lower contracted portion and causes the painful distention of the intestine which gives rise to colic. This pain increases, rises to an acme and then is relieved to recur in a similar way when peristalsis causes another wave of contraction to pass downward. The contracted ring on which colic really depends is due to an inhibition of the motor muscles of the intestine at this point and a stimulation of the circular fibers.

Family Periodic Paralysis.—There are in the literature now about forty cases of patients suffering from periodical paralysis. These paralyses occur especially in members of certain families and last for from a few hours to a few days. During the existence of the paralysis there is a total absence of irritability of the muscles affected; neither mechanical nor electrical stimuli have any effect upon them. The paralysis would seem to be due to a state of inhibition which for the time being obliterates all nervous function in connection with the affected part.

Myasthenia Gravis.—This is a condition of paralysis consisting of a group of symptoms which closely resemble those of a bulbar paralysis. The muscles most frequently affected are those of the face, especially the eyes, head and neck, with difficulty of swallowing, defective articulation and inability to support the head. In the cases reported so far no lesion of the nervous system has been found, though most of the cases have proved fatal. Dr. Meltzer is inclined to think that this condition is due to an inhibition of special sets of muscles. The affection of various muscles fluctuates as if it were merely neurotic, but its fatality shows that some serious underlying condition exists.

Myxedema and Graves' Disease.—Dr. Meltzer considers these two affections as contrasting examples of the disturbance of normal equilibrium of inhibition and excitation as connected with the thyroid gland. Myxedema represents a diseased excitation of the tissue metabolism in favor of inhibition; Graves' disease is a corresponding disturbance of tissue metabolism in favor of excitation. In myxedema the heart beats are smaller and are usually slower, the bowels are sluggish, the sweat-glands are inhibited, the mental processes are rendered slow, muscular motion is slower than normal, the temperature is lowered and there is a general lack of systemic tonicity. On the contrary, in Graves' disease the heart beats fast and high, diarrhea is apt to be present partly as a result of increased peristalsis and partly because of increase of glandular secretion of the intestines; all other glandular structures are stimulated; the sweat and urine are more plentiful; the intentional tremor so characteristic of the disease is really due to the fact that there is an excitation of the flexor muscles with the failure of inhibition of the extensor muscles which prevents that simultaneous action that would keep the parts at rest.

Exophthalmic Goiter and Inhibition.—Most of the characteristic eye symptoms of Graves' disease are associated with a state of nervous excitation. Stellwag's symptom, for instance, represent an increase of tonus of the levator muscle of the upper eyelid. The exophthalmos itself is due, at least in part, to valvular dilatation behind the eyeball. Moebius' symptom is due to overstimulation of certain of the internal eye-muscles that prevent proper convergence in association with near vision. There would seem to be a set of symptoms in the peripheral vascular system that contradict the idea of overstimulation. The peripheral capillaries are all relaxed in Graves' disease. This can be readily recognized from the readiness of the patient to blush easily and from the prompt occurrence of the tache cérébrale when the skin is irritated even slightly. These signs are an index of peripheral vasodilatation. It is very hard to reconcile them with the existence of a stage of excitation in peripheral nerves generally. It must be remembered, however, that the important reservoirs of the vascular system are the large abdominal blood-vessels. Within the abdomen the state of excitation causes a narrowing of the large intestinal blood-vessels and the blood thus forced into other paths finds its most likely way into the peripheral capillaries. Consequently, these become dilated with blood, not as the result of true dilatation, but of overbalance in the circulation due to the closure of internal blood-vessels.

Treatment of Graves' Disease.—There is no doubt that the most effective remedy in Graves' disease is the phosphates. Sodium phosphate is probably the most generally useful remedy in the condition. There is some specific relation between the administration of the phosphates and the production of certain forms of nervous inhibition; this seems to be the secret of the true effect of the phosphates. This same drug, however, has very little, if any, effect upon the tremor due to senility or upon alcoholic tremor, though these forms of tremor would seem to be sufficiently closely allied to the intentional tremor of Graves' disease to be associated with it in therapeutics.

Inhibition an Accepted Theory.—Dr. Charles L. Dana said that the rôle of inhibition in nervous diseases is a widely accepted theory and neurologists generally have come to recognize it as an important funda-

mental influence in many nervous affections. It is comparatively easy to accept inhibition theories of nervous diseases with regard to peripheral nervous affections; with regard to nervous centers of inhibition, however, there is no good reason for acceptance. It is a fascinating theory, for example, to explain periodic palsy by inhibition of nervous impulses to certain muscles. Myasthenia gravis and especially the myasthenic attacks which are so characteristic of this disease certainly receive their most satisfactory explanation on the ground that they are inhibitory spasms, a sort of inhibitory tic, an affection the very opposite, by analogy at least, of chorea and the convulsive tic. Of late years, neurologists have come to realize that Graves' disease has its best explanation not on the theory that it is due to essential thyroidism, but to a vasomotor excitation of the bulb. Dr. Meltzer's ingenious explanation of the cutaneous vasodilatation existing in the disease is most plausible. It enables the neurologist to realize how notwithstanding the symptoms of excitation so prominent in the disease as regards the internal organs, there is relaxation in the peripheral capillaries.

Inhibition as Nervous Influence.—Dr. Thomson said that inhibition undoubtedly plays a more important rôle in physiology than has been thought. Inhibition is always at work. Every nervous function is controlled by others and healthy vitality is the resultant of inhibitory influences upon one another with due coördination. Even in the higher rational sphere, the influence of inhibition is very noticeable; dreams are made up of ideas and sense perceptions and sensation, but these follow one another without control or discipline, hence are absurd. True thought is properly checked and controlled by inhibitory influences. The eye must always be controlled and disciplined, or objects seen would be completely misunderstood. Since inhibition is so prominent in the higher things of human life, it would be only natural to expect that it would exert a dominant influence on the more properly physical activities.

Graves' Disease and Myxedema.—Graves' disease undoubtedly represents a paralysis of inhibition and the consequent domination of uncontrolled excitation. Dr. Thomson does not think, however, that the opposite nervous condition is the true explanation of myxedema. It is not an increase of inhibition that causes the symptoms of myxedema, but it is rather a lessening of all the physical activities on which life depends. It is as if the fires were banked underneath the engines and the amount of energy supplied to the machine lessened. Inhibition is an active quality. All activity is lessened in myxedema by the presence in all cellular structures of the substance that hampers metabolism, interferes with function, disturbs reflexes, and diminishes all vital activity.

Centers of Inhibition.—Dr. Meltzer in closing the discussion said that it seems almost hopeless to look for separate centers for inhibition, though this was the custom among physiological neurologists some years ago. Inhibitory centers seem to be associated with other motor and secretory centers and thus produce their effects by coördination and not by direct interference.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held February 10, 1902.

The Vice-President, William McCollum, M.D., in the Chair.

Collective Investigation of Disease.—The Vice-President, Dr. McCollum, introduced the President-Elect, Dr. Andrew H. Smith, who delivered the annual address. In the course of it he said that he would like to suggest that a practice of collective investigation might profitably be engrafted upon the other work of the Society, not in a very formal way, but merely by having under consideration two or three topics upon which the members would be invited to accumulate observations as opportunity offered. When a sufficient body of observed facts had been secured they could be made the subject of a report. At the present time, so far as he was aware, there was no other society in New York engaged in a work of this kind, and the vast city, with the teeming millions of its five boroughs, in all of which the Association had so many able representatives, certainly offered a most inviting and fruitful field for such investigations.

Specific Medication.—Dr. Smith then took up the special topic of the evening, specific medication. Having referred to what is termed treating the patient instead of the disease, he said there were morbid states which evidently are but the working of a foreign agent which has obtained a lodgment in the body, which latter serves merely as the theater of its operations. The activity of this agent then constitutes the disease, and the disease will continue so long as the morbific agent remains active. Such a disease is called specific, and the disease itself, as distinguished from the patient, calls for treatment. The treatment in such a case necessarily implies the employment of some remedial agent having the power of antagonising the nervous principle at work in the system. This antagonism may be either chemical or vital in its mode of action, and more commonly it is the latter. As yet, the list of diseases, such as malaria, rheumatism, and syphilis, for which universally accepted specifics exist is very limited. It is not claimed that a specific shall be successful in every case. The most required is that in uncomplicated cases, and under proper conditions, a cure may be expected, or, at least, that the disease may be held in check so long as the remedy is continued. It may be said, in general terms, that the prospect is favorable for an increase in the number of the remedies available for use as specifics, as the result of increased knowledge of the phenomena of cell life on the one hand, and the action of remedies on the other.

Thus far the field for specific treatment has been confined to diseases in which a foreign morbific element has been introduced into the system, with the exception of myxedema and its kindred diseases, in which the source of trouble is the absence of something furnished by the thyroid gland which is necessary to a proper action of the economy. Here the artificial supply of thyroid gland or its extract constitutes an efficient specific treatment. In diseases having a parasitic origin the problem is to act upon the specific microorganism in such a way as to prevent a further production of toxin. What is aimed at is not destruction of the germ, but inhibition of its activity. Different strengths of solutions of the same agent may represent two classes known as germicides (or disinfectants) and antiseptics. Thus, mercuric chloride in a strength of 1-300,000 will prevent the development of anthrax spores, while destruction of the spores requires a strength of 1-1000. A further difference in favor of antisepsis within the body, as distinguished from that observed in the laboratory, arises from the fact that blood-serum, so long as it is circulating in the vessels of a living animal, acts by virtue of its vital condition as an antagonist to bacterial growth. An assumption that is exceedingly common is that for combating germs within the body one must look to those agents that are relied upon for use as disinfectants outside the body; and it is claimed that safety in the use of this requires such a degree of

attenuation as would make them inoperative. It is a fact, however, that not one of the recognized specifics would be employed outside the body for its disinfectant properties; and, furthermore, quantities of the appropriate agent amply sufficient for the purpose are constantly being given as specifics with entire safety. The case for specific medication outside the few diseases for which it is universally admitted to be indicated, it may well be believed, is not so hopeless as is commonly supposed. It is not necessary that there should be only one specific for each disease, as is shown particularly in the instance of malarial fever, which may be successfully treated not only with quinine, but also with arsenic, salicin, carbolic acid, ammonium picrate, and perhaps some other remedies. To say that there is no specific for pneumonia, because so many different agents will inhibit the germ upon which it depends, is to argue that a thing cannot be done because there are so many ways of doing it. The criticism has been made that the effect of different antiseptics and germicides upon parasitic micro-organisms must bear a definite relation to the mass of blood in which they are diluted, which may be roughly estimated as 12 to 14 pints in the adult; but what definite relation does half a dram of quinine or of potassium iodide, or two or three drams of a salicylate, or a dose of antitoxin bear to 12 or 14 pints of blood? Who asks such a question in the presence of a case of malarial fever, of syphilis, of acute rheumatism, or of diphtheria?

In pneumonia the conditions are very favorable for acting directly upon the germs, so that theoretically the *a priori* aspect of the case is encouraging; while from the clinical side accumulating experience seems in a considerable measure to support the theoretical deductions. Of the drugs which appear to act more or less specifically in this disease, the one which thus far seems to have accomplished the most is the salicylate of sodium. One notable feature of its use is that lysis is substituted for crisis as the habitual mode of defervescence, the lysis, when the treatment is begun early, occurring in advance of the usual time of crisis. Beginning with the report of Liegel's cases in 1898, the writer gave a résumé of the results thus far obtained with this agent. He then went on to say that he had found the carbonate of creosote, also believed to control the action of the pneumococcus, nearly as efficient. It can be given in quantities of two or three drams a day without the slightest inconvenience, and will usually bring about a lysis commencing twenty-four hours after the administration is begun. It is to be preferred when the stomach is inclined to be irritable, and also in cases of considerable depression when the sweating caused by the salicylate would be objectionable. In a series of 20 cases recently treated with this remedy at the New York Presbyterian Hospital (after excluding those already moribund and those complicated with conditions necessarily fatal in the presence of any severe acute disease) two died, a mortality of 10 per cent. chargeable to the pneumonia. In the *Medical Record* of February 1, 1902, Dr. W. H. Thomson published the details of 18 cases treated with creosote carbonate with one death.

In the remainder of the paper Dr. Smith spoke of the specific treatment of influenza, scarlet fever, gonococcic infection, gout, and rheumatism. He referred particularly to the success obtained by Dr. S. H. Dessau with carbolic acid in influenza and to the remarkable results with the same remedy in scarlet fever reported by Wigglesworth, of Liverpool. In conclusion he said that while the bacteriologist is at work in his laboratory, the clinician on his side has a field for action. Carefully-conducted experiments will show that the present dosage of remedies may be safely exceeded in some cases, or that objectionable effects may be avoided by combinations of remedies which yet will leave the specific action intact.

Creosote Carbonate in Pneumonia.—Dr. L. F. Bishop spoke of his experience with the use of creosote carbonate in pneumonia in the Colored Hospital, and said that on the whole he had been very favorably impressed with it. In a number of cases there were existing conditions which rendered them practically hopeless. Of five uncomplicated cases three recovered and two died. In spite of this comparatively large percentage of mortality, it seemed to him that the remedy was of essential service. He had recently seen a case in which it acted very happily. Lysis had occurred and the patient recovered in a very satisfactory manner.

What is Meant by a Specific?—Dr. James K. Crook quoted the definition of the word specific as given by various authorities, and said that if one accepted these one would be obliged to exclude from the category of specifics several of the most important remedies referred to by Dr. Smith. Specifics other than drugs were sometimes mentioned. Thus, climate was spoken of as a specific for phthisis, a sea-voyage as a specific for dyspepsia. Again, methods of treatment were called specifics, as hydrotherapy for rheumatism and homeopathy for whooping-cough and tonsillitis. For his own part he thought there was very little use for this term in modern medicine. Most of the specific systems of treatment, as well as many of the much-vaunted "specific" drugs of the past, had sunk into merited oblivion. That most virile of latter-day specific cults, homeopathy, was also gradually passing away, and he gave some statistics showing its decline. At the present time a number of remedies, such, for instance, as sodium salicylate and creosote carbonate, were looked upon as specifics; but it was a question whether they might not in the coming years be regarded in the same light as so many of the so-called specifics of the past. As an illustration he referred to the history of potassium chlorate. Hope for the future lay in rational therapeutics, and it should be the aim to use remedies for certain definite purposes which they were known to accomplish. Nitroglycerin, for instance, was known to cause dilatation of the blood-vessels, and it could always be depended upon to fulfil that indication. This kind of therapy could not be overthrown.

The Treatment of Pneumonia.—Dr. Egbert Le Fevre said that, while he had used both the salicylate of sodium and the carbonate of creosote, he had to confess that he felt some hesitancy in pushing these remedies to the full limit advised by some writers. The temperature fell by lysis and a fair proportion of the patients recovered, and yet he could not but think that for the most part they would have done quite as well without such treatment. He was, therefore, still in doubt as to its efficacy, and it seemed to him that there was some danger in putting these remedies forward as specifics.

The Use of Creosote.—Dr. Beverley Robinson said he was sorry to differ from the writer on many of the points that he had advanced. As to creosote, he believed it to be about the best anticatarrhal agent we possessed. It also had perhaps a certain amount of antiseptic quality. The best way of getting it into the system was by means of inhalation. In bronchitis or threatened bronchopneumonia and in commencing croupous pneumonia it was his practice to employ vaporized creosote in the room. In this form it was also the best protective agent for all those who had to be in the sick-room. He did not believe that there could be a specific for pneumonia, because the cases differed so greatly in character.

Preventive Medicine.—Dr. R. E. Van Giesen said that in therapeutics the tendency at the present day was toward prevention. He thought it most unfortunate that the announcement of Koch's tuberculin had been made to the world prematurely. With the improvements that had been made in its employment he believed that it would be generally recognized as having a distinct field of usefulness. He felt convinced, however, that it would never be of benefit except in the early stages of tuberculosis.

Serumtherapy.—It seemed to be a fact that every microbe has the capacity of developing its own antitoxin. Personally, he had looked upon the advent of diphtheria antitoxin with suspicion, but after he had made an investigation of the matter himself he felt convinced that as far as diphtheria was concerned a specific was in sight. The antitoxin should be employed at the earliest possible moment, for the later in the disease it was given the smaller was the chance of its proving successful. He believed also that other infectious diseases would give up their germ and would be benefited and conquered in the same way as diphtheria.

Dr. Homer Wakefield called attention to the fact that in rheumatism the salicylates, when given between meals, did not seem to have the same effect as when given at or immediately before or after meals. The bacterial product of fermentation might be either gastric or intestinal, or both, and when the fermentation was more intestinal than gastric salol acted more efficiently than the salicylates. In pneumonia, again, creosote acted better when given with meals than on an empty stomach.

Carbolic Acid in Influenza.—Dr. S. H. Dessau said that for the past six years he had employed carbolic acid constantly and freely, on the ground of its supposed action as an internal antiseptic. He had given it to thousands of children and had never met with an accident from it. He had found it especially useful in cases of modified influenza with subacute bronchitis when there was a persistent irritative cough. He had also employed it with success in typical cases of influenza.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held February 13, 1902.

The Chairman, Rowland G. Freeman, M.D., in the Chair.

Acquired Syphilis in Child.—Dr. Sara Welt Kakels presented a girl, eight years of age, suffering from acquired syphilis. The initial lesion had been on the clitoris and the child had had the usual secondary symptoms. The general adenopathy was quite marked and the lymph-nodes in the groins were especially enlarged. The enlargement was the characteristic discrete nodular hyperplasia that occurs in acquired syphilis.

Specific Stomatitis.—Dr. Henry Heimann presented a child suffering from stomatitis thought to be due to specific forms of micro-organisms. Scrapings from the stomatitic patches showed the presence of the bacillus of Vincent and the spirillum of Miller. The affection has been noted in a large number of cases, always associated with these two micro-organisms and thought to be due to their action. The treatment is by the use of silver solution in a strength of five to ten per cent. It occurs in run-down children and may prove enduring unless properly treated early.

Adenoid and Tonsil Pathology.—Dr. A. J. Lartigau said that the physiology of the normal tonsil is not very well understood as yet and physiologists are not very definitely agreed as to all of its functions. The lymphatic tissue of Waldeyer's ring can be best studied in the faucial tonsil. Its lymphatic structure corresponds very closely to that of Peyer's patches, but there is no agreement as to the interpretation of its functions here. There is no doubt that substances can be absorbed through these lymphatic patches and such powders as carmine, soot and cinnabar have been demonstrated at some distance from the surface after having been placed on the surface of the normal lymphatic tissue. Goodale considered that these powders are normally absorbed, partly through the lacunæ of the tonsillar tissue, and that they partly follow the connective tissue layers, while some of the grains are carried by leucocytes. Undoubtedly the absorption of bacteria with the pathological changes they induce opens the way for the absorption of other substances. It has been thought that absorption would not take place through the normal mucous membrane, but the present trend of opinion is against this notion. The leucocytes in the tonsillar tissue are not true phagocytes, as a rule, although some of them are. The lymphatic tissue in the tonsillar region is not smooth in outline and is not covered by ciliated epithelium, hence there is a lack of protection. There is a great liability to mechanical lesions owing to the swallowing of imperfectly chewed food. The irregularity of contour of the tonsils and the presence of crypts furnish special lurking-places for irritant particles, bacteria and other offending material. Saliva is thought to have a positive chemotactic action. The lymphoid tissue in this region furnishes protection against bacterial invasion, first, by its filtration action, secondly, because it attenuates the virulence of bacteria present, and, third, because there is a tendency to immunity from the free cells that exist in the parts.

Tonsillitis Varieties.— There are many varieties of tonsillitis, although they are apt to be grouped together in the practitioner's mind. Some of the pathological processes here are deep, some are superficial, some are exudative, and some are hyperplastic. Many of them are due to micro-organisms, the most common invaders being the various pyogenic micro-organisms, especially the streptococcus and staphylococcus, and after these the diphtheria bacillus, the pneumococcus and the bacillus tetragenus. Syphilitic infection of the pharyngeal tonsils has not been reported, although syphilitic affections of the faucial tonsils are not rare. Primary, secondary and tertiary lesions may occur. The diplococcus lanceolatus is a frequent cause of tonsillitis. In eleven cases of non-diphtheritic tonsillitis cultures taken from the throat proved to be sterile in five cases, while in six the growth showed a mixed infection consisting mainly of the streptococcus, but in a form that is rather non-virulent for rabbits.

Tuberculosis of Tonsils.—The results of the gathering of statistics with regard to tuberculous affections of the tonsils are somewhat discordant. The disease may be either primary or secondary. Secondary tuberculous tonsillitis occurs in chronic pulmonary tuberculous patients. This is not uncommon. About 80 per cent. of consumptive patients suffer from it. In 21 cases examined by Strassmann 13 showed tuberculous tonsillar lesions. In Schlesinger's cases every one had an affection of the tonsils. Primary tuberculosis of the tonsils is rather rare. Eighty cases examined for the purpose showed not a single positive result. Tuberculosis of the tonsils, when primary, is focal in character, small in area, and is situated near the surface of the tonsils. Pharyngeal tuberculosis, being localized in character, is often missed and treatment would probably be of little avail considering the condition of the patient.

Surgery of Adenoids.—Dr. W. K. Simpson said that some practitioners still think that there is no need to remove adenoids. They wait for Nature to relieve the condition that exists or fondly deceive themselves with the idea that the patients will outgrow it. The effects of adenoids are more deleterious the longer they are allowed to remain. These effects are seen in many parts of the body. Many cases of spasmodic croup are really due to the nervous reflexes induced by the presence of adenoids. The obstructed voice, the middle-ear deafness and the suppurative otitis media, so often seen in children, are usually due to adenoid enlargements. The mouth-breathers suffer from disturbed sleep, from malformations of the chest, from mental listlessness, and from general disturbance of normal development. If at the same time hypertropied tonsils be present, this makes the condition worse and the little patients are liable to constantly recurring attacks of pharyngeal and laryngeal inflammation. The only treatment that is of any real service is the radical removal of the overgrown tissue. Careful digital examination should be made in order to decide just where the adenoid masses are, so as to be able to remove them. Removal should be accomplished by instruments. The finger only serves to break up the masses and portions of them come away piecemeal, but the tumors are not detached from their bases. After the forceps are employed, the finger should be again introduced in order to ascertain whether other portions are removable. The curette serves a useful purpose in taking away shreds. For the removal of adenoids the Wilds snare is a very difficult instrument to employ, especially in children in whom there is very little room for its manipulation, and at best it should be reversed for young adults. Whether the curette or the forceps should be employed is a matter of individual practice. As a rule, there is less shock after the operation if no anesthetic is employed and the patients lose less blood. It is possible that under anesthesia portions of the adenoid growths may find their way into the larynx. One of the faults with the old forceps for adenoid operations was that the cutting surface was too small. The instrument took away only a very meager portion of the growth and it was difficult to reach a definite point in the nasopharynx to remove the vegetation. Modern forceps are, however, made with a much larger bite and with a sheath covering that saves the uvula from any chance of injury and protects the soft palate. As a rule, a much larger instrument can be employed even in small children than might be imagined. A child of three or four years of age will not be inconvenienced much by the largest forceps. The child should be put on a table on an inclined plane in order that the blood may readily make its escape. The curette to be employed must be more curved for adenoids that exist in the vault of the pharynx than for those on the posterior wall. When adenoids project more or less into the posterior nares the palate should be brought forward with a finger or the retractor to facilitate their removal. By the exercise of proper care practically all of the growth can be removed. Careful preliminary examination is the most important part of the technic for it enables the surgeon to decide just how his instruments must be applied.

Recurrence of Adenoids.—At times after the patient's upper respiratory passages have been free for some time following an operation they again become blocked up and an apparent recurrence takes place. This is evidently due to an inflammatory overgrowth of portions of the adenoid tissue which have been left behind. It is often impossible completely to remove adenoids. They exist at times at the sides of the nasopharynx or even in the fossæ of Rosemueller. At times, too, the growths project into the posterior nares and it is almost impossible to secure their complete removal. The portions left seem to take on renewed development and this constitutes the apparent recurrence. As a rule, the fork in the tonsillotome should be without darts. The darts add very little to the value of the instrument and they sometimes add considerable to the inconvenience of its application. There are three requirements for tonsillotomy: First, the tonsils should be well engaged; second, as small an amount as possible should be left behind, and, third, the pressure upon the tonsil from the outside should be kept up. After the operation nothing should be seen between the pillars of the fauces. Dr. Simpson considers the Mackenzie tonsillotome an ideal instrument. It serves very well as a mouth-gag and can do no harm. At times the tonsil is adherent to the pillars of the fauces. It may be separated by means of a bistoury or hooked tonsil knife. The flat broad tonsils that cannot be encircled by the tonsillotome may be operated upon by means of the punch forceps, which do their work very well, or may be reduced in size by means of electropuncture. This last process is, however, very slow.

Hemorrhage and After-Treatment.—In operations upon children's tonsils there is very little danger of hemorrhage. Few serious cases have been reported and almost without exception these have not been fatal. Secondary hemorrhage is said to occur a little more frequently after the employment of adrenalin to prevent primary hemorrhage. This is not, however, sure and more experience will probably serve to show that it is rather an undergrounded fear than a real danger. When an artery spouts torsion forceps should be applied. If the bleeding be a general oozing instead of from any definite point, the perchloride of iron should be used in order to stop it. As a rule, no after-treatment is required subsequent to tonsillotomy. Douching and insufflation of powders should be forbidden. Cracked ice may be allowed for twenty-four hours afterward and seems to add to the comfort of the patient, while it lessons the risk of hemorrhage. The patient should be advised to sleep with the head rather high, and rest during the day succeeding the operation should be insisted on. Little children should not be allowed to play about the room, and the eating of hard morsels as bread crusts or even meats should be forbidden. Liquid foods should be prescribed. As a rule adenoids can be removed with less hemorrhage without an anesthetic. There are, however, extremely nervous children for whom an anesthetic may be required.

The Lymphatic Constitution.—Dr. James Ewing said that it has now come to be recognized that sudden death occurs rather frequently in certain cases in which no definite organic lesion to account for it can be ascertained. In these cases there is often found on autopsy a general lymphatic hyperplasia that involves all the lymphoid tissues of the body. Not only are the lymphatic nodes enlarged, but there is usually enlargement of the various structures of Waldeyer's ring, of the pharyngeal tonsils and of the lymphoid structures of the intestines, Peyer's patches, etc. Accompanying this lymphatic condition there is a hypoplasia of the aorta and a failure to develop of certain other organs. The most interesting hypothesis recently suggested with regard to the lymphatic constitution is that of Ohlmacher, who believes that most epileptics suffer from the condition and that fatal epilepsy is especially apt to be associated with lymphatic enlargements in various portions of the body. Typical *grand mal* he thinks, always has the lymphatic constitution for its basis. Nervous symptoms are frequently associated with the lymphatic constitution and this subject is developing in

a manner that is of great practical interest. The neurosis of Basedow's disease and the enlarged thyroid are perhaps associated with this lymphatic constitution.

Recent Anatomical Advances.—Dr. William Elser showed by observations made in the laboratory of the Cornell Medical School that hemolymphatic nodes are frequent in the bodies of patients dead from the status lymphaticus. Quite recently attention has been directed to the atrophic stage of the disease. In these cases with the associated lymphatic enlargements there are infantilism of the sexual organs, the open foramen ovale of the heart and a small pelvis. At times it has been thought that the sudden death in the status lymphaticus was due to cerebral anemia, but this is doubtful. It has been pointed out that a catarrhal inflammation of the mucous membrane exists about the enlarged lymph-nodes, and it is thought that the latter predispose to enteritis and at times perhaps also to tuberculosis.

Thymic Asthma.—The impression has been gaining ground in recent years that the symptoms ordinarily called "thymic asthma" always develop on a basis of the lymphatic diathesis to which are subsequently added the other symptoms of the asthmatic condition. There is now no doubt that the enlarged thymus does sometimes cause sudden death by its pressure upon the trachea and upon important nerves leading to the larynx. In one case the patient has been saved by cutting down upon the enlarged thymus and sewing it to the sternum. The sudden death in these cases is due to capillary bronchitis only in rarer instances and the symptoms are of slow development. The general nervous condition is now thought to be more important than anything else in the etiology of the symptoms of the condition. The hypothesis that they were due to hyperthymization of the system has not been confirmed. It is true that the injection of extract of the thymus causes dyspnea and other symptoms in young animals and seems to lower their resistive vitality. This does not of itself, however, prove the theory. It is probable that the further study of the sympathetic nervous system may lead to some important developments with regard to the pathogenesis of the lymphatic constitution. When the status lymphaticus exists the administration of chloroform is nearly always fatal. The question at issue is, is chloroform ever fatal in any cases except those associated with the status lymphaticus? At Gratz all the fatal cases of chloroform narcosis in children have been found to be associated with the lymphatic constitution. The diagnosis of the lymphatic constitution is not impossible. The existence of the enlarged lymph-nodes throughout the body can very easily be recognized. If to this general adenopathy there is joined an enlargement of the visible lymph-structures at the back of the throat, especially the tonsils and adenoid tissues in the nasopharynx, it would seem almost unjustifiable to use chloroform as an anesthetic. This is an extremely important practical question to which sufficient attention has not been given. [Dr. Ewing's paper will appear in a subsequent issue of the MEDICAL NEWS.]

Treatment of Cervical Lymph-Nodes.—Dr. Charles N. Dowd said that it is extremely common to find the lymph-nodes of the neck enlarged as the result of sore throat. Single nodes may develop to the size of a horse-chestnut and yet subside without breaking down. They may last for months and yet disappear by resolution. The main question of interest in all cases is, Are they simple inflammatory enlargements or are they due to tuberculosis? As a rule, simple inflammatory enlargements reach the size of hickory-nuts, cause stiff neck for some days and then subside. In a recent case, however, Dr. Dowd has seen intense dyspnea develop as the result of the breaking-down of a series of inflamed lymph-nodes, and this was only relieved when pus was evacuated from the deeper structures of the neck. Dr. Dowd has had some recent cases in which it was extremely difficult to decide what was the etiology of the condition. It was also very difficult to decide whether surgical intervention should be undertaken or not. In one case the temperature ran up to 104° F., and then had a series of remissions, but always with high temperatures in the afternoon. Dr. Dowd felt sure that pus was present and yet the enlarged lymph-nodes subsided without operation. Dr. Dowd exhibited a patient who had suffered from eczema of the face and then developed a swelling nearly as large as a pullet's egg beneath the jaw. This is rather hard in consistence, does not give pain and is not tender. The question is, Is it tuberculous in origin and will it suppurate? Most tuberculous enlargements may last for several years and yet remain rather small. As soon as it is definitely decided that the enlargement of the lymph-nodes is due to tuberculosis, they should be removed. The resulting scars are less in this case than if abscess formation and spontaneous evacuation were permitted. As the result of operative treatment for this condition in Berlin, 70 per cent. of cures are reported while only 24 per cent. were cured by expectant treatment.

Conservatism as Regards Adenoids.—Dr. Jacobi said that if adenoids be very large in children, they should be removed. Surgical intervention is not needed, however, for small adenoids, even though they produce such symptoms as snoring and mouth-breathing. In these cases parents should instruct their children to irrigate the nares with warm salt water or boric-acid solution. This irrigation should be done very slowly; injections under pressure must by no means be made. Dr. Jacobi has seen many hundreds of cases in which symptoms were relieved by this simple means and no operation was needed. Adenoids should never be removed under general anesthesia, because in order to relax the spasm of the masseter muscle, one of the strongest in the body, the child must be anesthetized within an inch of its life. It is easy to remove adenoids by having the mother sit down in front of the doctor and hold the child on her knee, allowing its head to drop between the knees of the doctor. The little patient is thus held firmly, the blood finds its way out through the nose and the operation is over in a few minutes.

Dr. Quinlan deprecated the use of irrigation as tending to lessen the good that might be accomplished by the radical removal of adenoids. The results of the condition are too serious to allow temporization; when adenoids exist they should be removed.

Dr. Dowd said that since the administration of chloroform is liable to be fatal in children suffering from adenoids it should not be used. Dr. Lartigau said that ether also causes death when the lymphatic constitution is present. Dr. Jacobi said that chloroform is preferable to ether for child narcosis, because it kills through the heart and the child's heart is proportionately stronger than that of the adult.

BOOKS RECEIVED.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By Dr. J. V. Shoemaker. Fifth Edition. 8vo, 1135 pages. F. A. Davis Company, Philadelphia.

PROGRESSIVE MEDICINE. Edited by Dr. H. A. Hare. Vol. IV., December, 1901. 8vo, 409 pages. Lea Brothers & Co., Philadelphia and New York.